ALBERTA TRAFFIC COLLISION STATISTICS

1986

Alberta
TRANSPORTATION AND UTILITIES
Safety Branch

ALBERTA

TRAFFIC COLLISION STATISTICS

1986

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1986
OVERVIEW

- The number of traffic **fatalities decreased 1.9%** over the past year from 533 deaths in 1985 to 523 deaths in 1986.

- The number of **traffic injuries increased 11.5%** over the past year from 19,855 injuries in 1985 to 22,148 injuries in 1986.

- The number of **traffic collisions decreased 1.2%** over the past year from 98,389 collisions in 1985 to 97,181 collisions in 1986.

- **Casualty collisions** occurred most frequently during the **summer months.**

- **Friday** was the most collision-prone day of the week. However, the largest number of fatal collisions occurred on **Saturday.**

- The most collision-prone period of time was the **afternoon rush-hour.**

- **Fatal collisions** occurred most frequently in **rural areas,** whereas **injury and property damage only collisions** occurred more frequently in **urban areas.**

- **Casualty rates** were highest for persons between the **ages of 15 and 24.**

- **Male drivers** between the **ages of 16 and 19** were most likely to be involved in traffic collisions.

- **Driver error** was cited in 54.8% of casualty collisions.

- **26.9% of drivers** involved in **fatal crashes had been drinking** compared to **11.5% of drivers in injury crashes.**

- Approximately 82.4% of occupant casualties were not wearing a **seatbelt** at the time of the crash. Unrestrained occupant casualties were more likely to be young adults, 16-19 years of age.

PREFACE

The purpose of this report is to provide an overview of the "who", "what", "when", "where", "why", and "how" of traffic collisions which occurred in Alberta during 1986. Although the report is general in nature, it will pay particular attention to casualty collisions, that is, those collisions which resulted in death or injury. Since 1984, limited information is collected for crashes involving only property damage.

Legislation in Alberta requires that a traffic collision, which results in either death, injury or property damage to an apparent extent of $500.00 or more, be reported immediately to an authorized peace officer. The officer completes a standardized collision report form which provides information on various aspects of the traffic collision. This report is based on the data collected from these report forms.

The collision report form is issued with standard instructions to every police force within Alberta, to be completed by the officer attending the scene of a motor vehicle crash. Police priorities at the scene of a crash are to care for the injured, protect the motoring public and clear the roadway. Completion of the collision report form is a secondary, but a necessary task.

After completion, the information on the collision report form is coded for input onto computer files. The Provincial Traffic Crash Information System, which has been operational since 1978, undergoes several manual and computerized inspections each year in order to insure maximum accuracy of the final data output.

Due to continuing police investigation, some numbers presented in this report maybe subject to revision. It should also be noted that not all percentage columns will total 100 due to rounding error. However, the patterns and trends detailed in this report represent an accurate description of Alberta's traffic collision picture.

TABLE OF CONTENTS

	Page
1986 Overview	i
Preface	ii
1986 Traffic Collision Summary	1
When the Collisions Occurred	9
Victims	14
Driver Component	18
Vehicle Component	22
Environmental Component	26
Special Types of Vehicles	30
Pedestrians and Bicyclists	48
Traffic Safety Issues	61

LIST OF TABLES

		Page
Table 1.1	Alberta Traffic Collisions 1982-1986	2
Table 1.2	Alberta Traffic Collisions Rates 1982-1986	3
Table 1.3	Provincial Comparison of Casualty Rates Per 100 Million Vehicle Kilometres Travelled 1982-1986	6
Table 2.1	Collision Occurrence by Month 1986	9
Table 2.2	Collision Occurrence by Day of Week 1986	10
Table 2.3	Collision Occurrence by Time Periods 1986	11
Table 2.4	Collisions During 1986 Holidays	14
Table 3.1	Injuries and Fatalities by Road User Class 1986	15
Table 3.2	Age of Persons Involved in Casualty Collisions 1986	16
Table 4.1	Age and Sex of Drivers Involved in All Collisions: Per 1,000 Licensed Drivers	19
Table 4.2	Actions of Drivers Involved in Casualty Collisions 1986	21
Table 5.1	Types of Vehicles Involved in Casualty Collisions 1986	23
Table 5.2	Vehicular Factors Involved in Casualty Collisions 1986	24
Table 5.3	Point of Impact on Vehicles Involved in Casualty Collisions 1986	25
Table 6.1	Location of Collisions 1986	27
Table 6.2	Casualty Collision Occurrence by Surface Condition 1986	28
Table 6.3	Road Location of Casualty Collisions 1986	29
Table 7.1	Casualty Collisions Involving Motorcycles 1982-1986	32
Table 7.2	Casualty Collisions Involving Motorcycles: Age and Sex of Motorcycle Driver 1986	34

LIST OF TABLES

		Page
Table 7.3	Casualty Collisions Involving Motorcycles: Action of Motorcycle Driver 1986	35
Table 7.4	Casualty Collisions Involving Motorcycles: Condition of Motorcycle Driver 1986	36
Table 7.5	Casualty Collisions Involving Motorcycles: Vehicular Factors 1986	37
Table 7.6	Casualty Collisions Involving Motorcycles: Month of Occurrence 1986	38
Table 7.7	Casualty Collisions Involving Motorcycles: Road Surface Condition 1986	39
Table 7.8	Casualty Collisions Involving Tractor-Trailers 1982-1986	40
Table 7.9	Casualty Collisions Involving Tractor-Trailers: Driver Action 1986	41
Table 7.10	Casualty Collisions Involving Tractor-Trailers: Driver Condition 1986	42
Table 7.11	Casualty Collisions Involving Tractor-Trailers: Vehicular Factors 1986	43
Table 7.12	Casualty Collisions Involving Tractor-Trailers: Month of Occurrence 1986	44
Table 7.13	Casualty Collisions Involving Trains 1982-1986	45
Table 7.14	Casualty Collisions Involving Trains: Month of Occurrence 1986	46
Table 7.15	Casualty Collisions Involving Trains: Driver Action 1986	47
Table 8.1	Casualty Collisions Involving Pedestrians: Month of Occurrence 1986	49
Table 8.2	Casualty Collisions Involving Pedestrians: Day of Occurrence 1986	50
Table 8.3	Casualty Collisions Involving Pedestrians: Time Period 1986	51
Table 8.4	Casualty Collisions Involving Pedestrians: Location 1986	52
Table 8.5	Casualty Collisions Involving Pedestrians: Driver Action 1986	53

LIST OF TABLES

		Page
Table 8.6	Age of Pedestrian Casualties 1986	54
Table 8.7	Casualty Collisions Involving Bicycles: Month of Occurrence 1986	56
Table 8.8	Casualty Collisions Involving Bicycles: Day of Week 1986	57
Table 8.9	Casualty Collisions Involving Bicycles: Time Period 1986	58
Table 8.10	Casualty Collisions Involving Bicycles: Age and Sex of Bicyclist 1986	59
Table 8.11	Casualty Collisions Involving Bicycles: Action of Bicyclist 1986	60
Table 9.1	Condition of Drivers in Casualty Collisions 1986	62
Table 9.2	Alcohol-Involved Casualty Collisions: Age and Sex of Drinking Drivers 1986	65
Table 9.3	Alcohol-Involved Casualty Collisions: Month of Occurrence 1986	67
Table 9.4	Alcohol-Involved Casualty Collisions: Day of Week 1986	68
Table 9.5	Alcohol-Involved Casualty Collisions: Time of Occurrence 1986	69
Table 9.6	Restraint Not Used: Age of Occupant Casualties 1986	71
Table 9.7	Restraint Not Used: Sex of Occupant Casualties 1986	72

LIST OF FIGURES

		Page
Figure 1	Alberta Traffic Collision Rates 1982-1986	5
Figure 2	Provincial Traffic Fatality Rates Per 100 Million Vehicle Kilometres Travelled 1986	7
Figure 3	Collision Occurrence by Month/Day of Week/Time Periods of Occurrence 1986	12
Figure 4	Age of Casualties Casualty Rate Per 10,000 Population 1986	17
Figure 5	Age and Sex of Drivers Involved in All Collisions Collision Rate Per 1000 Licensed Drivers 1986	20
Figure 6	Number of Motorcycles Involved in Fatal Collisions Per 10,000 Registered Motorcycles 1982-1986	33
Figure 7	Pedestrian Casualties Rate Per 10,000 Population 1986	55
Figure 8	Involvement of Drinking Drivers in Casualty Collisions 1982-1986	63
Figure 9	Driver Condition in Casualty Collisions 1986	64
Figure 10	Age and Sex of Drinking Drivers Involved in Casualty Collisions Rate Per 1000 Licensed Drivers 1986	66
Figure 11	Alcohol-Involved Fatal Collisions by Month/Day of Week/Time Period of Occurrence 1986	70
Figure 12	Injury Severity and Use of Restraints For Occupant Casualties 1986	73

1986 TRAFFIC COLLISION SUMMARY

INTRODUCTION

- During 1986, 97,185 traffic collisions were recorded on Alberta roadways. Approximately 85% (82,372) of these crashes involved property damage only (over $500), while approximately 15% (14,383) were non-fatal injury collisions. Fatal crashes accounted for less than 1% (430) of the total reported collisions.

FIVE YEAR TRENDS

- Over the five year period, fatal collision rates and fatality rates decreased until 1983 rising in 1984 and 1985, but falling again in 1986. The fatal collision rate, in terms of 100 million vehicle kilometres travelled, stands at 2.0 compared to the five year low of 1.6 registered in 1983.

- Non-fatal injury collision rates and non-fatal injury rates decreased steadily until 1984. In 1986, the non-fatal injury collision rate, in terms of 100 million vehicle kilometres travelled, stands at 66.7.

- In terms of 100 million vehicle kilometres travelled, property damage and total collision rates now stand at 382.1 and 450.8, respectively. This is down slightly from the 1985 rate.

PROVINCIAL COMPARISONS

- In order to get a clear picture of Alberta's traffic injuries in comparison to other provinces, rates rather than absolute numbers were also utilized. In this instance, injury rates per 100 million vehicle kilometres travelled were examined.

- In 1986, of those provinces for which information was available, only Ontario and Newfoundland, recorded lower fatality rates, in terms of 100 million vehicle kilometres travelled.

Table 1.1

ALBERTA TRAFFIC COLLISIONS

1982 - 1986

Severity of Collision	1986	1985	1984	1983	1982
Fatal Collisions	430	432	401	370	429
Non-Fatal Injury Collisions	14383	12733	12100	12966	14737
Property Damage Only Collisions	82372	85224	76498	81871	85525
TOTAL Reportable Collisions	97185	98389	88999	95207	100691
Number Killed	523	533	470	428	502
Number Injured	22148	19855	18955	19237	21925
TOTAL Number of Casualties	22671	20388	19425	19665	22427

OBSERVATIONS

In 1986, the overall number of collisions decreased 1.2% when compared to 1985. Also, in 1986, injury collisions increased 13.0% while fatal crashes decreased 0.5%. However the number of fatalities has decreased by 1.9% from 1985 to 1986, while the number of injuries increased by 11.5%. In terms of the past five years, overall collisions declined from 1982 to 1984, increased in 1985, but decreased again in 1986.

Table 1.2

ALBERTA TRAFFIC COLLISION RATES

1982 - 1986

Severity of Collision	Per 10,000 Licensed Drivers					Per 10,000 Population				
	1986	1985	1984	1983	1982	1986	1985	1984	1983	1982
Fatal Collisions	2.4	2.4	2.2	2.0	2.4	1.8	1.8	1.7	1.6	1.8
Number Killed	2.9	3.0	2.6	2.4	2.8	2.2	2.3	2.0	1.8	2.1
Non-Fatal Injury Collisions	78.9	70.8	66.5	71.3	81.9	60.3	54.2	51.5	55.2	62.2
Number Injured	121.5	110.5	104.2	105.8	121.8	92.9	84.5	80.7	81.9	92.4
Property Damage Only Collisions	452.0	474.2	420.7	450.3	475.1	345.4	362.8	325.7	348.4	360.5
TOTAL Reportable Collisions	533.4	547.4	489.4	523.6	559.4	407.5	418.8	378.9	405.2	424.5

Severity of Collision	Per 10,000 Registered Vehicles					Per 100 Million Vehicle Kilometres				
	1986	1985	1984	1983	1982	1986	1985	1984	1983	1982
Fatal Collisions	2.1	2.1	1.9	1.8	2.1	2.0	2.0	1.8	1.6	1.9
Number Killed	2.5	2.6	2.3	2.1	2.4	2.4	2.5	2.1	1.9	2.2
Non-Fatal Injury Collisions	69.0	62.6	58.3	63.1	70.6	66.7	59.1	54.1	57.8	64.2
Number Injured	106.3	97.6	91.3	93.6	105.0	102.7	92.1	84.8	85.7	95.6
Property Damage Only Collisions	395.2	419.0	368.3	398.2	409.5	382.1	395.3	342.2	364.7	372.8
TOTAL Reportable Collisions	466.3	483.7	428.5	463.1	482.2	450.8	456.3	398.1	424.1	438.9

Table 1.2
(Continued)

OBSERVATIONS

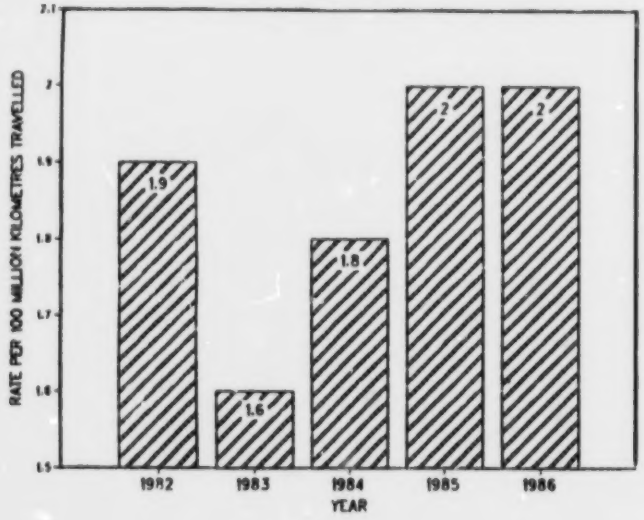
Fatal collision rates and fatality rates in terms of licensed drivers, population, registered vehicles and vehicle kilometres travelled decreased until 1983, rising slightly over the next two years. In terms of vehicle kilometres travelled, the fatal collision rate remained at 2.0. In 1986 the non-fatal injury collision rate increased over 1985, after a previous four year decline. Over the past year, in terms of vehicle kilometres travelled, property damage and total collision rates have decreased.

Sources:

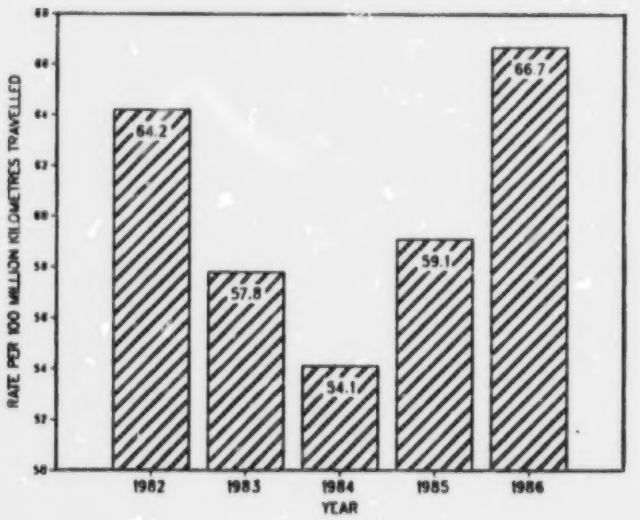
Licensed Drivers - Operator Statistics, Motor Vehicles Division, Alberta Solicitor General, January 31, 1987.
Population - Based on postcensal estimate of the population by sex and age. Canada and Provinces, 1986, Statistics Canada.
Registered Vehicles - Motor Vehicles Division, Alberta Solicitor General, April 13, 1986.
Vehicle Km - Estimated on the basis of gross sales of gasoline, information supplied by Statistics Canada. Catalogue No. 53-218(1985).

ALBERTA TRAFFIC COLLISION RATES 1982–1986

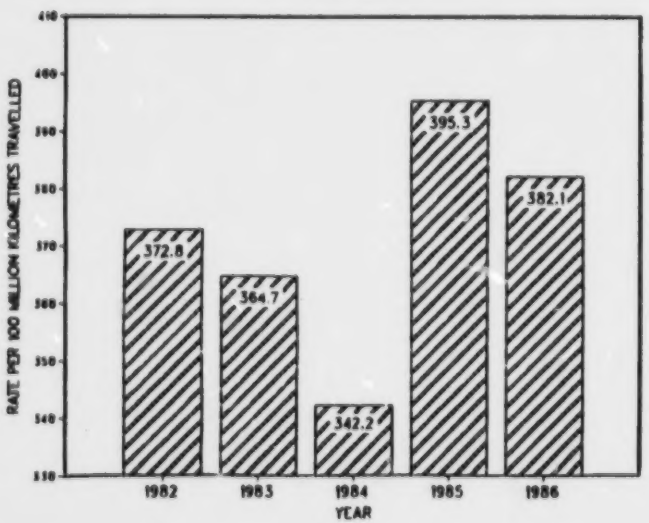
FATAL COLLISION RATE IN ALBERTA
1982–1986



INJURY COLLISION RATE IN ALBERTA
1982–1986



PROPERTY DAMAGE COLLISION RATE IN ALBERTA
1982–1986



OVERALL COLLISION RATE IN ALBERTA
1982–1986

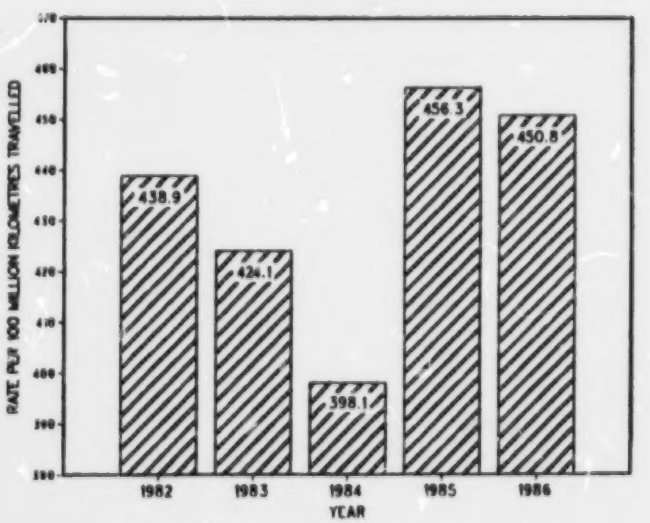


Figure 1

Table 1.3
Provincial Comparison of
Casualty Rates Per 100 Million
Vehicle Kilometres Travelled
1982 - 1986

	1986		1985		1984		1983		1982	
	Fatals	Injuries	Fatals	Injuries	Fatals	Injuries	Fatals	Injuries	Fatals	Injuries
Alberta	2.4	102.7	2.5	92.1	2.1	85.0	1.9	85.7	2.2	95.6
Saskatchewan	2.4	86.8	2.1	83.2	2.2	78.8	2.4	83.7	2.5	88.6
British Columbia	*	*	2.6	188.2	2.8	172.5	3.2	166.9	3.0	168.0
Manitoba	*	*	1.8	145.2	1.7	159.5	1.8	145.6	2.0	137.8
Ontario	1.6	155.7	1.7	156.4	1.6	141.6	1.8	136.3	1.7	137.1
Quebec	3.1	173.5	4.2	184.6	3.6	163.1	3.5	144.8	3.0	128.0
New Brunswick	2.8	133.8	3.0	122.5	3.3	116.1	2.6	108.3	4.0	102.2
Nova Scotia	2.5	76.7	2.9	98.8	2.8	77.4	3.0	102.0	3.1	78.3
Prince Edward Island	3.4	96.2	4.4	104.4	3.6	104.1	3.6	101.3	1.9	75.2
Newfoundland	2.2	97.7	2.5	92.8	2.2	79.0	3.7	85.3	2.6	87.3

Sources: Casualty statistics supplied by each province. Vehicle kilometres travelled were estimated on the basis of gross sales of gasoline, information supplied by Statistics Canada, catalogue No. 53-218 (1985) and for Ontario by the Ontario Ministry of Transportation and Communication. Saskatchewan Department of Highways, Design and Traffic Safety Branch provided a vehicle kilometres travelled estimate based on average annual daily traffic.

OBSERVATIONS

Since 1982, of those provinces for which information was available, most recorded higher fatality and injury rates than Alberta. During 1986, Newfoundland and Ontario recorded lower fatality rates than Alberta.

* Not available at time of printing.

PROVINCIAL TRAFFIC FATALITY RATES
Per 100 Million Vehicle Kilometres Travelled
1986

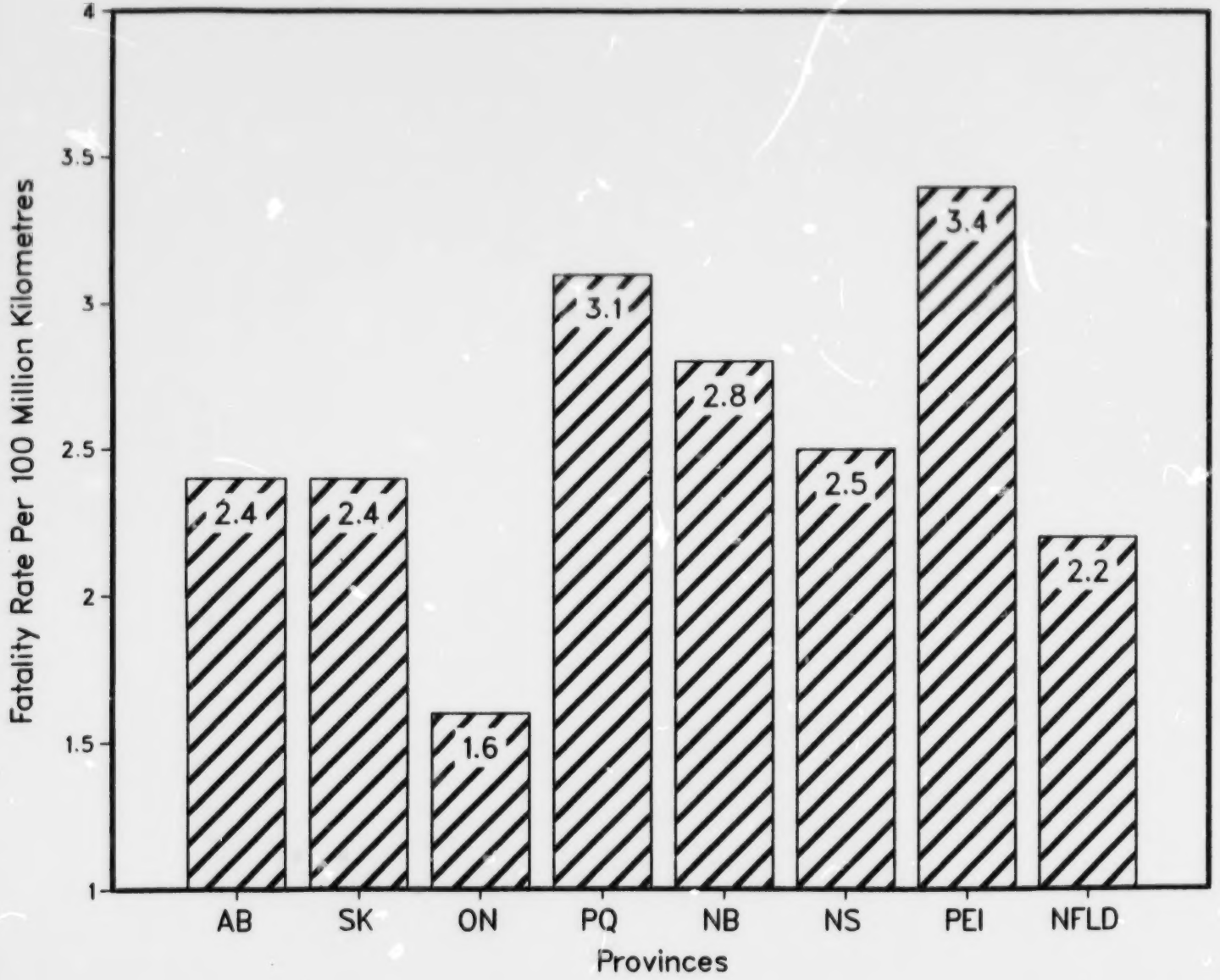


Figure 2

WHEN THE COLLISIONS OCCURRED

MONTH

- The summer months (June, July, August) experienced more casualty collisions than any other season. The highest number of property damage only collisions was recorded during the months of February and November.

DAY OF WEEK

- The daily distribution of collisions indicated that Friday was the most collision - prone day of the week. However, the largest number of fatal collisions occurred on Saturday.

TIME

- The afternoon rush hour period (3 p.m. - 6:59 p.m.) accounted for the highest proportion of collisions. The least collision - prone time period was the early morning (3 a.m. - 6:59 a.m.)

HOLIDAYS

- The five-day Easter weekend recorded the greatest number of traffic collisions for a holiday period in 1986. The 1986 Victoria Day weekend recorded the highest total number of deaths.

Table 2.1

COLLISION OCCURRENCE BY MONTH

1986

Month	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Property Damage Only Collisions N	Property Damage Only Collisions %	Total Collisions N	Total Collisions %
January	28	6.5	1025	7.1	6362	7.7	7415	7.6
February	28	6.5	1036	7.2	8073	9.8	9137	9.4
March	31	7.2	1118	7.8	6947	8.4	8096	8.3
April	30	7.0	1012	7.0	5677	6.9	6719	6.9
May	37	8.6	1210	8.4	6235	7.6	7482	7.7
June	50	11.6	1350	9.4	6208	7.5	7608	7.8
July	43	10.0	1340	9.3	6449	7.8	7832	8.1
August	54	12.6	1452	10.1	6218	7.5	7724	7.9
September	35	8.1	1285	8.9	6722	8.2	8042	8.3
October	39	9.1	1338	9.3	7343	8.9	8720	9.0
November	22	5.1	1138	7.9	9235	11.2	10395	10.7
December	33	7.7	1077	7.5	6845	8.3	7955	8.2
Unspecified	0	0.0	2	0.0	58	0.1	60	0.1
TOTAL Number of Collisions	**430**	**100.0**	**14383**	**100.0**	**82372**	**100.0**	**97185**	**100.0**

OBSERVATIONS

The summer months (June - August) experienced more fatal and injury collisions than any other season. The highest number of property damage only collisions was reported in the months of February and November.

Table 2.2

COLLISION OCCURRENCE BY

DAY OF WEEK

1986

Day of Week	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Property Damage Only Collisions N	Property Damage Only Collisions %	Total Collisions N	Total Collisions %
Monday	32	7.4	1825	12.7	11290	13.7	13147	13.5
Tuesday	45	10.5	1989	13.8	12007	14.6	14041	14.4
Wednesday	52	12.1	1912	13.3	11856	14.4	13820	14.2
Thursday	77	17.9	1976	13.7	12713	15.4	14766	15.2
Friday	77	17.9	2468	17.2	14312	17.4	16857	17.3
Saturday	93	21.6	2448	17.0	12140	14.7	14681	15.1
Sunday	54	12.6	1765	12.3	8054	9.8	9873	10.2
TOTAL Number of Collisions	**430**	**100.0**	**14383**	**100.0**	**82372**	**100.0**	**97185**	**100.0**

OBSERVATIONS

The daily distribution of collisions indicated that overall Friday was the most collision-prone day of the week, followed by Thursday and Saturday. The remaining weekdays (Monday to Wednesday) were similar to each other in terms of collision totals, while Sunday was the least collision-prone day of the week. However, the largest number of fatal collisions was recorded on Saturday (21.6%).

Table 2.3

COLLISION OCCURRENCE BY

TIME PERIODS

1986

Time Period	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Property Damage Only Collisions N	Property Damage Only Collisions %	Total Collisions N	Total Collisions %
11:00 p.m. - 2:59 a.m.	72	16.7	1688	11.7	7466	9.1	9226	9.5
3:00 a.m. - 6:59 a.m.	51	11.9	868	6.0	3366	4.1	4285	4.4
7:00 a.m. - 10:59 a.m.	46	10.7	2020	14.0	13313	16.2	15379	15.8
11:00 a.m. - 2:59 p.m.	73	17.0	2976	20.7	20246	24.6	23295	24.0
3:00 p.m. - 6:59 p.m.	104	24.2	4063	28.2	22552	27.4	26719	27.5
7:00 p.m. - 10:59 p.m.	84	19.5	2523	17.5	13724	16.7	16331	16.8
Unspecified	0	0.0	245	1.7	1705	2.1	1950	2.0
TOTAL Number of Collisions	**430**	**100.0**	**14383**	**100.0**	**82372**	**100.0**	**97185**	**100.0**

OBSERVATIONS

The afternoon rush hour period (3:00 p.m. - 6:59 p.m.) accounted for the largest percentage (27.5%) of collisions occurring in a 24 hour period. The least collision - prone time period was the early morning (3:00 a.m. - 6:59 a.m.).

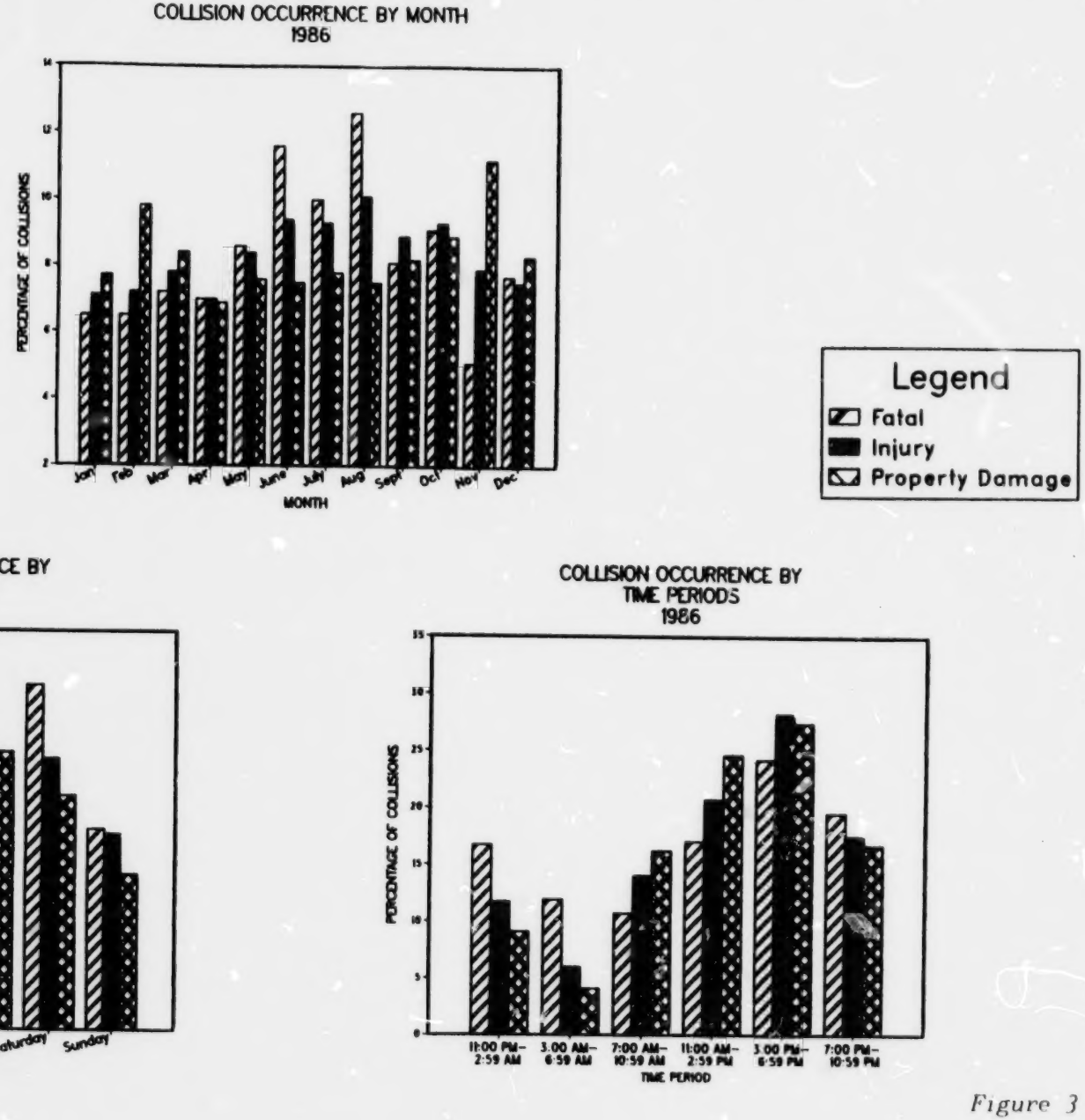

COLLISION OCCURRENCE BY MONTH
1986
PERCENTAGE OF COLLISIONS
Jan
Feb
Mar
Apr
May
June
July
Aug
Sept
Oct
Nov
Dec
MONTH
Legend
Fatal
Injury
Property Damage
COLLISION OCCURRENCE BY DAY OF WEEK
1986
PERCENTAGE OF COLLISIONS
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
DAY OF WEEK
COLLISION OCCURRENCE BY TIME PERIODS
1986
PERCENTAGE OF COLLISIONS
11:00 PM–2:59 AM
3:00 AM–6:59 AM
7:00 AM–10:59 AM
11:00 AM–2:59 PM
3:00 PM–6:59 PM
7:00 PM–10:59 PM
TIME PERIOD

Figure 3

Table 2.4

COLLISIONS DURING 1986 HOLIDAYS

Holidays	Number Killed		Number Injured		TOTAL* COLLISIONS	
	N	%	N	%	N	%
New Year's Day (January 1)	2	3.7	54	2.8	177	2.8
Easter (March 27 - 31)	5	9.3	240	12.3	1074	17.0
Victoria Day (May 16 - 19)	18	33.3	269	13.8	843	13.3
Canada Day (July 1)	1	1.9	58	3.0	199	3.1
August Long Weekend (August 1 - 4)	6	11.1	308	15.8	876	13.8
Labour Day (August 29 - September 1)	9	16.7	324	16.6	1001	15.8
Thanksgiving (October 10 - 13)	5	9.3	310	15.9	917	14.5
Remembrance Day (November 11)	2	3.7	72	3.7	258	4.1
Christmas Season (December 23 - 28)	6	11.1	314	16.1	985	15.6
TOTAL	**54**	**100.0**	**1949**	**100.0**	**6330**	**100.0**

OBSERVATIONS

The Victoria Day and Labor Day long weekends recorded the highest number of individuals killed. The Easter and Labor Day long weekends recorded the highest number of total collisions.

* Includes fatal, injury and property damage only collisions.

VICTIMS

ROAD USER CLASS

- The majority of traffic victims were drivers and passengers of vehicles. Pedestrians and motorcyclists accounted for 5.1% and 5.0% of the total casualties, respectively.

AGE OF CASUALTIES

- Casualty rates per 10,000 population were highest for persons between the ages of 15 and 24. The lowest casualty rates were recorded for children under 14 and people 65 years of age and over.

Table 3.1

INJURIES AND FATALITIES

BY ROAD USER CLASS

1986

Road User Class	Persons Killed N	Persons Killed %	Persons Injured N	Persons Injured %	Total Casualties N	Total Casualties %
Drivers	257	49.1	12095	54.6	12352	54.5
Passengers	165	31.6	7205	32.5	7370	32.5
Pedestrians	52	9.9	1093	4.9	1145	5.1
Motorcyclists	32	6.1	1093	4.9	1125	5.0
Bicyclists	9	1.7	585	2.6	594	2.6
Other	3	0.6	60	0.3	63	0.3
Unspecified	5	1.0	17	0.1	22	0.1
TOTAL	**523**	**100.0**	**22148**	**100.0**	**22671**	**100.0**

OBSERVATIONS

The majority of traffic victims were drivers and passengers of vehicles. Pedestrians and motorcyclists accounted for 5.1% and 5.0% of the total casualties, respectively.

Table 3.2

AGE OF PERSONS INVOLVED

IN CASUALTY COLLISIONS

1986

Age in Years	Persons Killed N	Persons Killed %	Persons Injured N	Persons Injured %	Casualty Rate Per 10,000 Population* %
Under 5	19	3.6	533	2.4	26.5
5 - 9	8	1.5	679	3.1	36.8
10 - 14	16	3.1	837	3.8	48.8
15 - 19	86	16.4	3953	17.8	217.9
20 - 24	92	17.6	4113	18.6	185.4
25 - 29	62	11.9	3063	13.8	120.1
30 - 34	44	8.4	2151	9.7	94.6
35 - 44	56	10.7	2768	12.5	85.8
45 - 54	41	7.8	1443	6.5	69.7
55 - 64	42	8.0	1146	5.2	68.2
65 and over	57	10.9	1075	4.9	58.4
Unspecified	0	0.0	387	1.7	
TOTAL	**523**	**99.9**	**22148**	**100.0**	

OBSERVATIONS

Casualty rates per population were highest for persons between the ages of 15 and 24. The lowest casualty rates were recorded for children (14 years of age and younger) and people 65 and over.

* Based on postcensal estimates of the population by sex and age. Canada and Provinces, 1986. Statistics Canada.

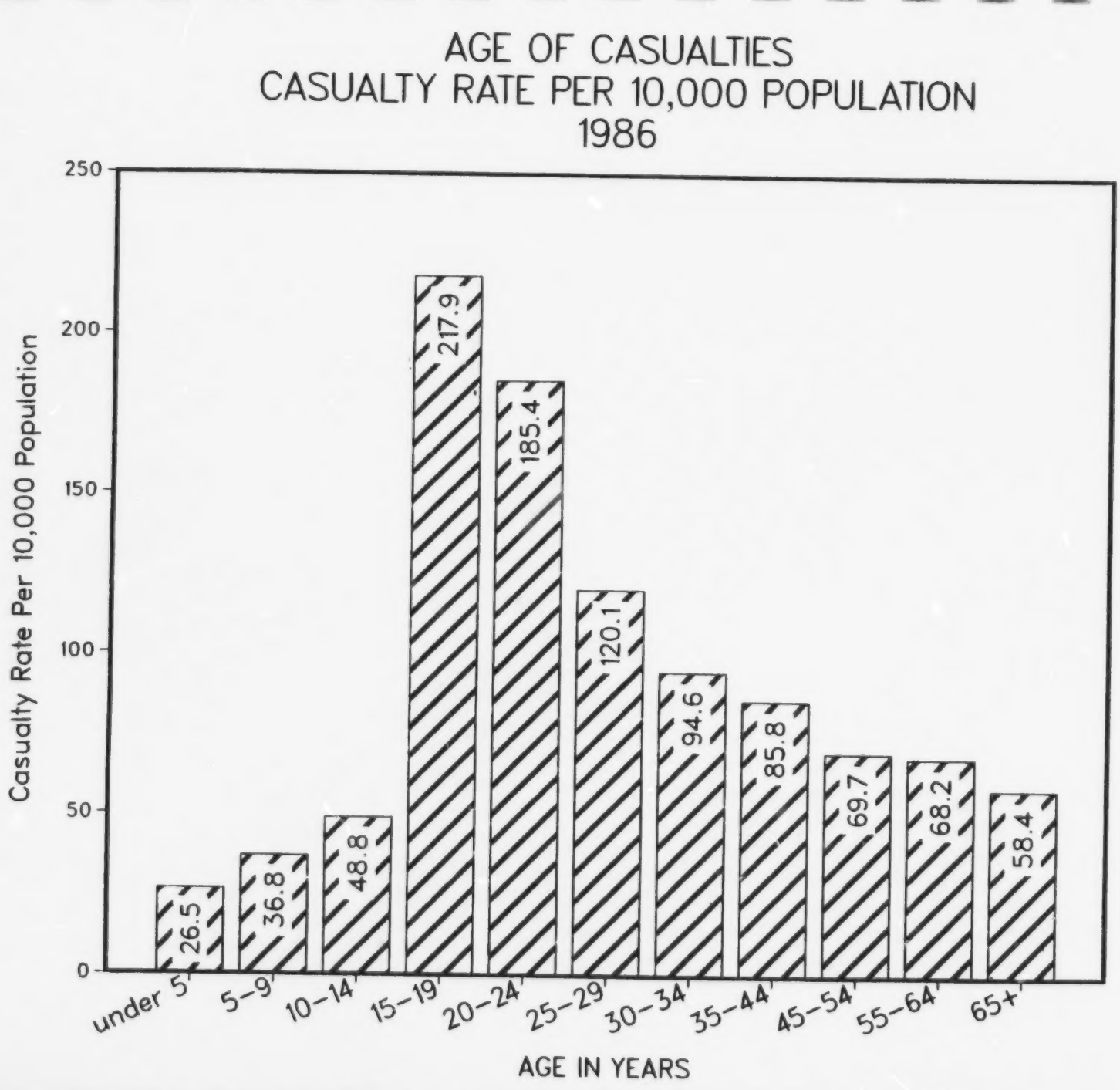

AGE OF CASUALTIES
CASUALTY RATE PER 10,000 POPULATION
1986
Casualty Rate Per 10,000 Population
250
200
150
100
50
0
26.5
36.8
48.8
217.9
185.4
120.1
94.6
85.8
69.7
68.2
58.4
under 5
5-9
10-14
15-19
20-24
25-29
30-34
35-44
45-54
55-64
65+
AGE IN YEARS

Figure 4

DRIVER COMPONENT

AGE AND SEX OF DRIVERS

- Overall collision rates per 1000 licensed drivers indicated that 18-19 year olds were more likely to be involved in a traffic collision than any other age group. The next age group most likely to be involved in collisions were 16 to 17 year olds.

DRIVER ACTIONS

- Driver error or misjudgement was involved in approximately 54.8% of casualty collisions. Running off the road, failing to observe a traffic control device and travelling at an unsafe speed were the most frequent driver actions contributing to casualty collisions.

Table 4.1

AGE AND SEX* OF DRIVERS INVOLVED IN ALL COLLISIONS: PER 1,000 LICENSED DRIVERS

1986

	MALES			FEMALES			TOTAL		
Age of Driver	N	%	Per 1000** Licensed Drivers	N	%	Per 1000** Licensed Drivers	N	%	Per 1000** Licensed Drivers
Under 16	809	0.6	48.5	395	0.3	34.8	1204	0.8	43.0
16 - 17	5619	3.8	175.1	2502	1.7	95.7	8121	5.6	139.4
18 - 19	7540	5.2	198.6	3101	2.1	94.6	10641	7.3	150.4
20 - 24	19121	13.1	147.5	7756	5.3	68.0	26877	18.4	110.3
25 - 34	30452	20.8	98.2	12912	8.8	49.0	43364	29.7	75.6
35 - 44	16053	11.0	80.5	8096	5.5	48.1	24149	16.5	65.7
45 - 54	9344	6.4	77.8	3891	2.7	41.2	13235	9.1	61.7
55 - 64	6623	4.5	72.7	2232	1.5	34.7	8855	6.1	57.0
65 and over	4666	3.2	67.2	1552	1.1	37.9	6218	4.3	56.4
Unspecified	2512	1.7		945	0.7		3457	2.4	
TOTAL Number of Drivers	**102739**	**70.3**		**43382**	**29.7**		**146121**	**100.0**	

OBSERVATIONS

Overall collision rates per 1000 licensed drivers indicated that 18-19 year olds were more likely to be involved in a traffic collision than any other age group. The next age group most likely to be involved in crashes were 16 to 17 year olds.

* Includes only drivers whose sex was specified on the collision report form.

** Source: Alberta Solicitor General - Motor Vehicles Division. Operator Statistics, January 31, 1987.

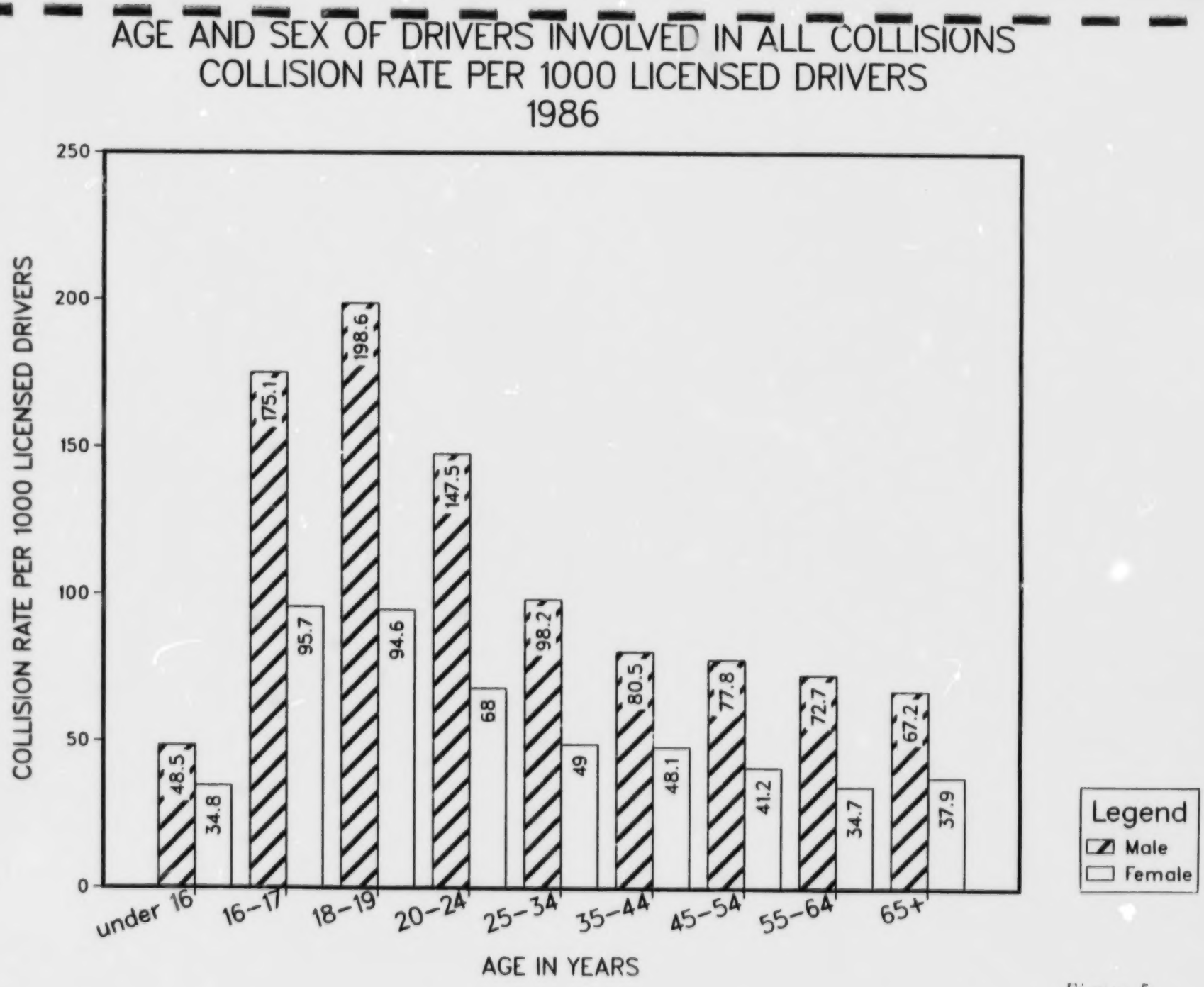

AGE AND SEX OF DRIVERS INVOLVED IN ALL COLLISIONS
COLLISION RATE PER 1000 LICENSED DRIVERS
1986
COLLISION RATE PER 1000 LICENSED DRIVERS
250
200
150
100
50
0
48.5
34.8
175.1
95.7
198.6
94.6
147.5
68
98.2
49
80.5
48.1
77.8
41.2
72.7
34.7
67.2
37.9
under 16
16–17
18–19
20–24
25–34
35–44
45–54
55–64
65+
AGE IN YEARS
Legend
Male
Female

Figure 5

Table 4.2

ACTIONS OF DRIVERS INVOLVED IN CASUALTY COLLISIONS*

1986

Driver Action	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
Driving Properly	224	37.4	10111	45.5	10335	45.3
Ran Off Road	80	13.4	1811	8.1	1891	8.3
Failed to Observe Traffic Control Device	32	5.3	1397	6.3	1429	6.3
Unsafe Speed	77	12.9	1293	5.8	1370	6.0
Left Turn Across Path	14	2.3	1149	5.2	1163	5.1
Failed to Yield Right-of-Way	32	5.3	1064	4.8	1096	4.8
Followed Too Closely	4	0.7	1059	4.8	1063	4.7
Entered Lane When Unsafe	9	1.5	410	1.8	419	1.8
Left of Centre	58	9.7	333	1.5	391	1.7
Improper Turn	0	0.0	366	1.6	366	1.6
Improper Passing	15	2.5	172	0.8	187	0.8
Backed Unsafely	3	0.5	176	0.8	179	0.8
Failed to Signal	2	0.3	17	0.1	19	0.1
Other	49	8.2	2881	13.0	2930	12.8
TOTAL Number of Drivers	**599**	**100.0**	**22239**	**100.0**	**22838**	**100.0**

OBSERVATIONS

Driver error or misjudgement was involved in 54.8% of casualty collisions. Running off the road, failing to observe traffic control device and unsafe speed were the most frequently identified driver actions contributing to casualty collisions.

*Includes only those cases where driver action was specified on the collision report form.

VEHICLE COMPONENT

TYPES OF VEHICLES

- Passenger cars and pick up trucks/vans were the vehicles most frequently involved in total casualty collisions. Motorcycles were involved in 4.1% of casualty collisions and trucks 4000 kg and over were involved in 2.9% of casualty collisions.

VEHICULAR FACTORS

- Vehicle defects played a minor role in casualty collisions. Less than 3% of vehicles involved in casualty collisions were identified as having a vehicle defect. The most common defects involved defective brakes and tire failure.

POINT OF IMPACT

- The most common point of impact in casualty collisions involved the front of the vehicle. Approximately 37% of the impacts involved the centre front.

Table 5.1

TYPES OF VEHICLES INVOLVED IN CASUALTY COLLISIONS*

1986

Type of Vehicle	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
Passenger Car	313	46.5	15209	62.7	15522	62.3
Pick Up Truck/Van	225	33.4	6002	24.8	6227	25.0
Motorcycle	33	4.9	989	4.1	1022	4.1
Truck 4000 Kg+	25	3.7	690	2.8	715	2.9
Bicycle	9	1.3	581	2.4	590	2.4
Tractor Trailer	53	7.9	425	1.8	478	1.9
School Bus	2	0.3	36	0.1	38	0.2
Other Bus	5	0.7	124	0.5	129	0.5
Off Hwy. Vehicle	1	0.1	55	0.2	56	0.2
Farm Equipment	0	0.0	29	0.1	29	0.1
Other	7	1.0	107	0.4	114	0.5
TOTAL Number of Vehicles	**673**	**100.0**	**24247**	**100.0**	**24920**	**100.0**

OBSERVATIONS

Passenger cars and pick up trucks/vans were the vehicles most frequently involved in total casualty collisions. Overall, motorcycles were involved in 4.1% of casualty collisions and trucks 4000 kg and over were involved in 2.9% of casualty collisions. Tractor-trailers were involved in 1.9% of total casualty crashes, but in 7.9% of fatal crashes.

* Includes only those cases where type of vehicle was specified on the collision report form.

Table 5.2

VEHICULAR FACTORS

INVOLVED IN CASUALTY COLLISIONS*

1986

Vehicular Factors	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
No Defect Present	450	93.9	21329	97.9	21779	97.8
Defective Brakes	8	1.7	111	0.5	119	0.5
Tire Failure/Inadequate	6	1.3	111	0.5	117	0.5
Lighting Defect	5	1.0	70	0.3	75	0.3
Other	10	2.1	169	0.8	179	0.8
TOTAL Number of Vehicles	**479**	**100.0**	**21790**	**100.0**	**22269**	**100.0**

OBSERVATIONS

Vehicle defects played a minor role in casualty collisions. Less than 3% of vehicles involved in these types of collisions were identified as having a vehicle defect. The most common defects included defective brakes and tire failure.

* Includes only those cases in which a vehicular factor was specified on the collision report form.

Table 5.3

POINT OF IMPACT

ON VEHICLES INVOLVED IN

CASUALTY COLLISIONS*

1986

Point of Impact	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
Centre Front	261	40.1	8351	37.1	8612	37.1
Right Front	52	8.0	2378	10.6	2430	10.5
Left Front	64	9.8	2591	11.5	2655	11.5
Right Side	43	6.6	1406	6.2	1449	6.2
Left Side	59	9.1	1291	5.7	1350	5.8
Centre Rear	26	4.0	2659	11.8	2685	11.6
Right Rear	12	1.8	853	3.8	865	3.7
Left Rear	15	2.3	798	3.5	813	3.5
Top	6	0.9	78	0.3	84	0.4
Undercarriage	3	0.5	141	0.6	144	0.6
Rollover	110	17.0	1990	8.8	2100	9.1
TOTAL Number of Vehicles	**651**	**100.0**	**22536**	**100.0**	**23187**	**100.0**

OBSERVATIONS

The most common point of impact in casualty collisions involved the front of the vehicle. Approximately 37% of the impacts involved the centre front while 11.6% of the impacts involved the centre rear and 11.5% involved the left front.

* Includes only those cases in which point of impact was specified on the collision report form.

ENVIRONMENTAL COMPONENT

LOCATION

- The majority of fatal crashes occurred in rural areas, whereas, the majority of injury and property damage only crashes occurred in urban areas.

SURFACE CONDITION

- Just over half (53.2%) of the casualty collisions occurred when surface conditions were dry. Snow/ice were present in 19.5% of the casualty crashes.

ROAD LOCATION

- Approximately 46.6% of casualty collisions were intersection related. However, fatal collisions were more likely to be non-intersection related (almost 55%).

Table 6.1

LOCATION OF COLLISIONS

1986

Location	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Property Damage Only Collisions N	Property Damage Only Collisions %	Total Collisions N	Total Collisions %
Urban	138	32.1	9917	68.9	68881	83.6	78936	81.2
Rural	292	67.9	4441	30.9	13415	16.3	18148	18.7
Unspecified	0	0.0	25	0.2	76	0.1	101	0.1
TOTAL Number of Collisions	**430**	**100.0**	**14383**	**100.0**	**82372**	**100.0**	**97185**	**100.0**

OBSERVATIONS

Collisions which occurred in rural areas accounted for 67.9% of all fatal crashes. Collisions occurring in urban areas resulted in the highest proportion of non-fatal injury collisions (68.9%) and property damage only crashes (83.6%).

For the purpose of this report "urban" refers to any area within the corporate boundaries of a city, town, or village. "Rural" is any area outside such boundaries.

Table 6.2

CASUALTY COLLISION OCCURRENCE

BY SURFACE CONDITION

1986

Surface Condition	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
Dry	268	62.3	7612	52.9	7880	53.2
Snowy/Icy	53	12.3	2832	19.7	2885	19.5
Wet	42	9.8	1888	13.1	1930	13.0
Loose Material	36	8.4	798	5.5	834	5.6
Other	4	0.9	65	0.5	69	0.5
Unspecified	27	6.3	1188	8.3	1215	8.2
TOTAL Number of Collisions	**430**	**100.0**	**14383**	**100.0**	**14813**	**100.0**

OBSERVATIONS

The majority of casualty collisions occurred when surface conditions were dry. Snow and ice were involved in 12.3% of fatal collisions and 19.7% of non-fatal injury collisions.

Table 6.3

ROAD LOCATION OF CASUALTY COLLISIONS

1986

Road Location	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
Intersection-Related	134	31.2	6764	47.0	6898	46.6
Non-Intersection Related	236	54.9	6304	43.8	6540	44.2
At/Near Entrance to Private Property	24	5.6	418	2.9	442	3.0
Parking Lot	3	0.7	315	2.2	318	2.1
At/Near Commercial Entrance	2	0.5	263	1.8	265	1.8
Off Highway	24	5.6	106	0.7	130	0.9
At/Near Service Road	3	0.7	116	0.8	119	0.8
At/Near Railroad Crossing	4	0.9	62	0.4	66	0.4
Unspecified	0	0.0	35	0.2	35	0.2
TOTAL Number of Collisions	**430**	**100.0**	**14383**	**100.0**	**14813**	**100.0**

OBSERVATIONS

46.6% of casualty collisions were intersection related. Fatal collisions were more likely to be non-intersection related (54.9%).

SPECIAL TYPES OF VEHICLES

MOTORCYCLES

- Fatal motorcycle collision rates based on motorcycle registrations increased slightly since 1985. The involvement rate for non-fatal injury collisions has also risen.

- The majority of motorcycle casualty collisions involved male drivers. Motorcycle drivers under the age of 25 were the age group most likely to be involved in these collisions. In particular 16 and 17 year old motorcycle drivers had an involvement rate per 1,000 licenced drivers of 74.9, over four times that of the 20-24 year old motorcycle drivers.

- Compared to drivers involved in other types of vehicle collisions, motorcycle drivers were less likely to fail to yield right-of-way, fail to observe a traffic control device or make a left turn across the path of an oncoming vehicle. However motorcycle drivers were more likely to drive at an unsafe speed, run off the road, or pass improperly.

- Compared to drivers involved in other types of vehicle casualty collisions, motorcycle drivers were more likely to have consumed alcohol before the crash.

- Vehicular factors were involved in 4.3% of motorcycle casualty collisions compared to 2.2% of casualty collisions involving other types of vehicles.

- The majority of casualty collisions involving motorcycles occurred on dry roads.

TRACTOR TRAILERS

- In 1986, there were 65 persons killed and 607 injured in collisions involving tractor trailers. This represents a decrease in casualties over 1985.

- Compared to drivers of other vehicles, tractor trailer drivers were more likely to run off the road.

- Tractor trailer drivers were less likely to consume alcohol before the crash than were drivers of other types of collision - involved vehicles.

- Vehicular factors were slightly more likely to be present in tractor trailer casualty collisions than in casualty collisions involving other types of vehicles.

- The occurrences of casualty collisions involving tractor trailers were highest in the months of August and November.

TRAINS

- In 1986, 3 people were killed and 22 people were injured in crashes in which a train was involved. The number of casualties involving trains decreased from 1985.

- The majority of casualty collisions involving trains occurred in the month of October.

- Approximately 12.0% of drivers involved in a train crash were driving properly. A large percentage of drivers either failed to observe the traffic control device (44.0%) or failed to yield right-of-way to the train (12.0%).

Table 7.1

CASUALTY COLLISIONS INVOLVING MOTORCYCLES

1982 - 1986

	1986	1985	1984	1983	1982
Number of Motorcycles					
Fatal	33	33	26	39	43
Non-Fatal Injury	989	896	873	981	1109
TOTAL Number of Motorcycles	**1022**	**929**	**899**	**1020**	**1152**
Casualties*					
Number Killed	33	32	27	44	43
Number Injured	1156	1099	1030	1197	1320
TOTAL Casualties	**1189**	**1131**	**1057**	**1241**	**1363**
Number of Motorcycles Involved in Casualty Collisions Per 10,000 Registered Motorcycles**					
Fatal Collisions	7.1	5.5	4.4	6.6	7.2
Non-Fatal Injury Collisions	212.7	150.2	147.9	165.5	185.1

OBSERVATIONS

Fatal motorcycle collision rates based on motorcycle registrations decreased until 1984; however they have risen over the past 2 years. The involvement rate for non-fatal injury collisions has followed the same pattern.

* This refers to the number of people killed and injured in collisions in which a motorcycle was involved. It does **not** refer to the number of motorcyclists killed and injured.

** Source: Based on vehicle registration statistics, Motor Vehicles Division, Alberta Solicitor General, April 13, 1986.

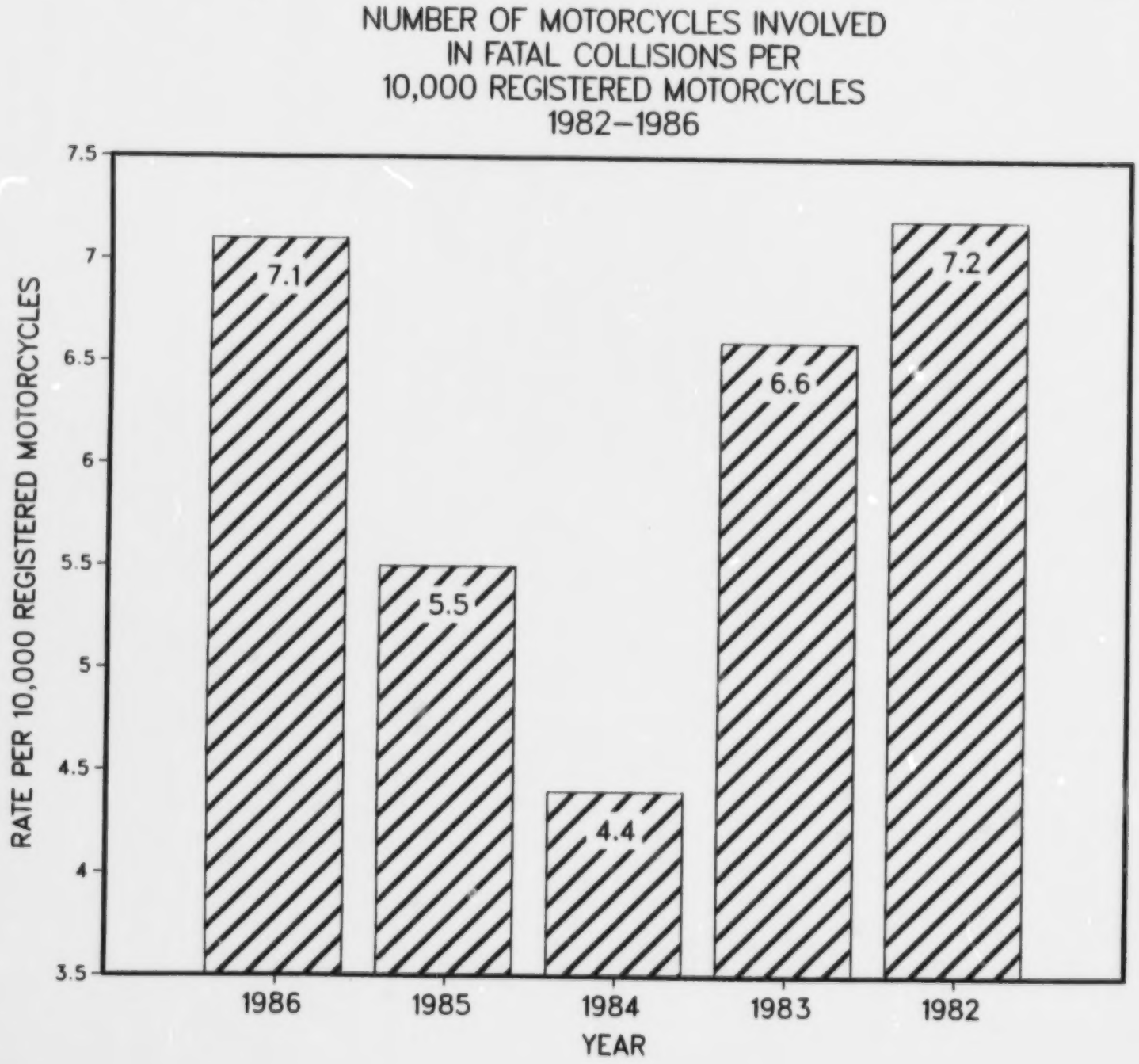

NUMBER OF MOTORCYCLES INVOLVED
IN FATAL COLLISIONS PER
10,000 REGISTERED MOTORCYCLES
1982–1986
RATE PER 10,000 REGISTERED MOTORCYCLES
7.5
7
6.5
6
5.5
5
4.5
4
3.5
7.1
5.5
4.4
6.6
7.2
1986
1985
1984
1983
1982
YEAR

Figure 6

Table 7.2

CASUALTY COLLISIONS INVOLVING MOTORCYCLES:

AGE AND SEX OF MOTORCYCLE DRIVERS*

1986

	Male		Female		Total		Per 1,000 Licensed Motorcycle Operators**
Age of Driver	N	%	N	%	N	%	%
Under 16	31	3.1	2	0.2	33	3.3	-
16 - 17	73	7.2	5	0.5	78	7.7	81.9
18 - 19	132	13.1	6	0.6	138	13.7	48.9
20 - 24	330	32.7	8	0.8	338	33.5	18.3
25 - 34	296	29.3	13	1.3	309	30.6	4.2
35 - 44	72	7.1	10	1.0	82	8.1	2.3
45 - 54	19	1.9	0	0.0	19	1.9	1.6
55 - 64	12	1.2	0	0.0	12	1.2	2.2
65 and over	0	0.0	0	0.0	0	0.0	0.0
TOTAL Number of Motorcycle Drivers	**965**	**95.6**	**44**	**4.4**	**1009**	**100.0**	

OBSERVATIONS

The majority of motorcycle casualty collisions involved male drivers. Motorcycle drivers under the age of 25 were the age group most likely to be involved in collisions. In particular, 16 and 17 year old motorcycle drivers had a high involvement rate. The age group least likely to be involved in collisions were drivers 45-54 years of age. These age and sex comparisons are limited due to the lack of driving exposure data. That is, in order to make valid age comparisons, it is important to take into account the number of kilometres driven annually by each age and sex group of motorcycle operators.

* Includes only drivers whose age and sex was specified on the collision report form.

** Source: Alberta Solicitor General - Motor Vehicles Division. Operator Statistics, January 31, 1987.

Table 7.3

CASUALTY COLLISIONS

INVOLVING MOTORCYCLES:

ACTION OF MOTORCYCLE DRIVER*

1986

Driver Action	Motorcycle Collisions N	Motorcycle Collisions %	Total Casualty Collisions (All Vehicle Types) %
Driving Properly	386	41.3	45.3
Unsafe Speed	159	17.0	6.0
Ran Off Road	104	11.1	8.3
Followed Too Closely	36	3.9	4.7
Improper Passing	29	3.1	0.8
Failed to Yield Right-of-Way	22	2.4	4.8
Failed to Observe Traffic Control Device	19	2.0	6.3
Entered Lane When Unsafe	10	1.1	1.8
Left of Centre	8	0.9	1.7
Improper Turn	7	0.7	1.6
Left Turn Across Path	5	0.5	5.1
Failed to Signal	2	0.2	0.1
Other	148	15.8	12.8
TOTAL Number of Motorcycle Drivers	**935**	**100.0**	

OBSERVATIONS

Improper driver actions were a contributory factor for 58.7% of the motorcyclists involved in casualty collisions. Compared to drivers involved in other types of vehicle casualty collisions, motorcycle drivers were more likely to drive at an unsafe speed, run off the road, or pass improperly. However, motorcycle drivers were less likely to fail to yield right-of-way, fail to observe a traffic control device or make a left turn across the path of an oncoming vehicle.

* Based only on cases where driver action was specified on the collision report form.

Table 7.4

CASUALTY COLLISIONS

INVOLVING MOTORCYCLES:

CONDITION OF MOTORCYCLE DRIVER*

1986

Driver Condition	Motorcycle Collisions N	Motorcycle Collisions %	Total Casualty Collisions (All Vehicle Types) %
Normal	768	82.5	86.9
Had Been Drinking	126	13.5	7.3
Alcohol Impaired	32	3.4	4.7
Other	5	0.5	1.2
TOTAL Number of Motorcycle Drivers	**931**	**100.0**	

OBSERVATIONS

The motorcycle driver's condition was a contributory factor for 17.4% of these crashes. However, compared to drivers involved in other types of vehicle casualty collisions, motorcycle drivers were more likely to have consumed alcohol prior to the crash.

* Based only on cases where driver condition was specified on the collision report form.

Table 7.5

CASUALTY COLLISIONS

INVOLVING MOTORCYCLES:

VEHICULAR FACTORS*

1986

Vehicular Factors	Motorcycle Collisions N	Motorcycle Collisions %	Total Casualty Collisions (All Vehicle Types) %
No Defect Present	863	95.7	97.8
Tire Failure/Inadequate	15	1.7	0.5
Defective Brakes	5	0.5	0.5
Lighting Defect	9	1.0	0.3
Other	10	1.1	0.8
TOTAL Number of Motorcycles	**902**	**100.0**	

OBSERVATIONS

Vehicular factors were involved in 4.3% of motorcycle casualty collisions, compared to 2.1% in casualty collisions involving other types of vehicles. In particular, motorcycles were more than three times as likely as other vehicle types to experience tire failure.

* Based only on cases where a vehicular factor was specified on the collision report form.

Table 7.6

CASUALTY COLLISIONS

INVOLVING MOTORCYCLES:

MONTH OF OCCURRENCE

1986

Month	N	%
January	4	0.4
February	6	0.6
March	27	2.7
April	84	8.4
May	156	15.6
June	187	18.7
July	171	17.1
August	186	18.6
September	84	8.4
October	83	8.3
November	6	0.6
December	4	0.4
TOTAL Number of Collisions	**998**	**100.0**

OBSERVATIONS

The months of May to August recorded the highest proportion of casualty crashes involving motorcycles.

Table 7.7

CASUALTY COLLISIONS

INVOLVING MOTORCYCLES:

ROAD SURFACE CONDITION*

1986

Road Surface Condition	N	%
Dry	755	82.7
Wet	71	7.8
Loose Material	70	7.7
Snowy/Icy	5	0.5
Other	12	1.3
TOTAL Number of Collisions	**913**	**100.0**

OBSERVATIONS

The majority of casualty collisions involving motorcycles occurred on dry roads. However, 7.8% of the collisions occurred on wet road surfaces. Loose material on the road surface was involved in 7.7% of motorcycle casualty crashes.

* Based only on collisions where road surface condition was specified on the collision report form.

Table 7.8

CASUALTY COLLISIONS INVOLVING TRACTOR-TRAILERS

1982-1986

Number of Tractor-Trailers	1986	1985	1984	1983	1982
	N	N	N	N	N
Fatal	53	63	47	27	54
Non-Fatal Injury	425	433	422	384	454
TOTAL Number of Tractor-Trailers	**478**	**496**	**469**	**411**	**508**
Casualties*					
Number Killed	65	86	54	34	69
Number Injured	607	646	646	528	641
TOTAL Casualties	**672**	**732**	**700**	**562**	**710**

OBSERVATIONS

In 1986, there were 65 persons killed and 607 injured in collisions involving tractor-trailers. This represents a decrease in casualties from 1985. The number of tractor-trailers involved in casualty crashes also declined in 1986, standing at 478 compared to the five-year high of 508 recorded in 1982.

* This refers to the number of people killed and injured in collisions in which a tractor-trailer was involved. It does not refer to the number of tractor-trailer drivers killed and injured.

Table 7.9

CASUALTY COLLISIONS

INVOLVING TRACTOR-TRAILERS:

DRIVER ACTION*

1986

Driver Action	Tractor-Trailer Collisions N	Tractor-Trailer Collisions %	Total Casualty Collisions (All Vehicle Types) %
Driving Properly	238	53.7	45.3
Ran Off Road	59	13.3	8.3
Unsafe Speed	22	5.0	6.0
Failed to Observe Traffic Control Device	18	4.1	6.3
Followed Too Closely	13	2.9	4.7
Left Turn Across Path	13	2.9	5.1
Improper Turn	13	2.9	1.6
Left of Centre	9	2.0	1.7
Improper Passing	6	1.4	0.8
Entered Lane When Unsafe	5	1.1	1.8
Failed to Yield Right-of-Way	4	0.9	4.8
Backed Unsafely	3	0.7	0.8
Other	40	9.0	12.8
TOTAL Number of Drivers	**443**	**100.0**	

OBSERVATIONS

Improper driver actions were exhibited by 46.3% of the tractor-trailer drivers involved in casualty collisions. Compared to drivers of other vehicles, tractor-trailer drivers were more likely to run off the road. However, operators of tractor-trailers were less likely than other vehicle operators to fail to yield the right-of-way, make an unsafe left turn, or fail to observe traffic control devices.

* Based only on those cases where driver action was specified on the collision report form.

Table 7.10

CASUALTY COLLISIONS

INVOLVING TRACTOR-TRAILERS:

DRIVER CONDITION*

1986

Driver Condition	Tractor-Trailer Collisions N	Tractor-Trailer Collisions %	Total Casualty Collisions (All Vehicle Types) %
Normal	429	96.2	86.9
Had Been Drinking	4	0.9	7.3
Alcohol Impaired	6	1.3	4.7
Other	7	1.6	1.2
TOTAL Number of Drivers	**446**	**100.0**	

OBSERVATIONS

The condition of the tractor-trailer driver was a contributory factor for only 3.8% of the drivers involved. Tractor-trailer drivers were less likely to consume alcohol before the crash than were drivers of other types of collision-involved vehicles.

* Based only on cases where driver condition was specified on the collision report form.

Table 7.11

CASUALTY COLLISIONS

INVOLVING TRACTOR-TRAILERS:

VEHICULAR FACTORS*

1986

Vehicular Factors	Tractor-Trailer Collisions N	Tractor-Trailer Collisions %	Total Casualty Collisions (All Vehicle Types) %
No Defect Present	407	95.3	97.8
Lighting Defect	5	1.2	0.3
Defective Brakes	4	0.9	0.5
Tire Failure/Inadequate	2	0.5	0.5
Other	9	2.1	0.8
TOTAL Number of Tractor-Trailers	**427**	**100.0**	

OBSERVATIONS

Vehicular factors were involved in 4.7% of tractor-trailer casualty collisions. Vehicular factors were slightly more likely to be present in tractor-trailer collisions than in collisions involving other types of vehicles.

* Based only on those cases where vehicular factor was specified on the collison report form.

Table 7.12
CASUALTY COLLISIONS
INVOLVING TRACTOR-TRAILERS:
MONTH OF OCCURRENCE
1986

Month	N	%
January	39	9.4
February	43	10.4
March	44	10.6
April	19	4.6
May	21	5.1
June	23	5.6
July	34	8.2
August	46	11.1
September	37	8.9
October	26	6.3
November	48	11.6
December	34	8.2
TOTAL Number of Collisions	**414**	**100.0**

OBSERVATIONS

The occurrence of casualty collisions involving tractor-trailers was highest in the months of August and November. The lowest number of tractor-trailer casualty collisions occurred during April and May.

Table 7.13

CASUALTY COLLISIONS INVOLVING TRAINS

1982-1986

Number of Trains	1986	1985	1984	1983	1982
	N	N	N	N	N
Fatal	3	5	4	7	9
Non-Fatal Injury	22	30	33	30	32
TOTAL Number of Trains	**25**	**35**	**37**	**37**	**41**
Casualties					
Number Killed	3	6	4	9	11
Number Injured	30	41	44	43	45
TOTAL Casualties	**33**	**47**	**48**	**52**	**56**

OBSERVATIONS

The number of trains involved in casualty collisions has been decreasing since 1982. The number of casualties involved in these collisions have also decreased over the five-year period 1982-1986.

Table 7.14

CASUALTY COLLISIONS INVOLVING TRAINS:

MONTH OF OCCURRENCE

1986

Month	Fatal Collisions		Non-Fatal Injury Collisions		Total Casualty Collisions	
	N	%	N	%	N	%
January	1	33.3	1	4.5	2	8.0
February	0	0.0	3	13.7	3	12.0
March	0	0.0	1	4.5	1	4.0
April	0	0.0	2	9.1	2	8.0
May	0	0.0	0	0.0	0	0.0
June	1	33.3	1	4.5	2	8.0
July	0	0.0	2	9.1	2	8.0
August	1	33.3	0	0.0	1	4.0
September	0	0.0	3	13.7	3	12.0
October	0	0.0	5	22.7	5	20.0
November	0	0.0	1	4.5	1	4.0
December	0	0.0	3	13.7	3	12.0
TOTAL Number of Collisions	**3**	**100.0**	**22**	**100.0**	**25**	**100.0**

OBSERVATIONS

The largest number of casualty collisions involving trains occurred in the month of October.

Table 7.15

CASUALTY COLLISIONS INVOLVING TRAINS:

DRIVER ACTION

1986

Driver Action	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
Driving Properly	1	25.0	2	9.5	3	12.0
Failed to Observe Traffic Control Device	3	75.0	8	38.1	11	44.0
Failed to Yield Right-of-Way	0	0.0	3	14.3	3	12.0
Backed Unsafely	0	0.0	1	4.8	1	4.0
Improper Turn	0	0.0	1	4.8	1	4.0
Entered Lane When Unsafe	0	0.0	1	4.8	1	4.0
Other	0	0.0	5	23.8	5	20.0
TOTAL Number of Drivers	**4**	**100.0**	**21**	**100.0**	**25**	**100.0**

OBSERVATIONS

Only 12.0% of drivers involved in a train crash were driving properly. A large percentage of drivers either failed to observe the traffic control device (44.0%) or failed to yield right-of-way to the train (12.0%).

PEDESTRIANS AND BICYCLISTS

PEDESTRIANS

- Pedestrian casualty collisions were fairly evenly distributed across all months of the year. March and October accounted for the largest number of collisions, while August experienced the least number of pedestrian crashes.

- Pedestrian casualty collisions were most likely to occur on Fridays and least likely to occur on Sundays.

- Pedestrian casualty collisions were most likely to occur during the evening rush-hour period.

- Drivers failed to yield the right-of-way to pedestrians in 30.3% of the collisions.

- The casualty rate per population was highest for pedestrians between the ages of 5 and 19.

BICYCLISTS

- Casualty collisions involving bicycles were more likely to occur between the months of May and August.

- Tuesdays experienced the most casualty collisions involving bicycles. As well, the largest number of these crashes (40.2%) occurred during the evening rush-hour period.

- The majority of bicycle casualty crashes involved young people, 10-19 years of age.

- The action of the bicyclist involved contributed to 66.9% of these casualty crashes. The most commonly cited bicyclist actions were failing to yield the right-of-way, failing to observe a traffic control device, and entering a lane when unsafe.

Table 8.1

CASUALTY COLLISIONS INVOLVING PEDESTRIANS:

MONTH OF OCCURRENCE

1986

Month of Collision	N	%
January	89	8.5
February	89	8.5
March	106	10.1
April	81	7.7
May	80	7.6
June	88	8.4
July	76	7.3
August	65	6.2
September	79	7.5
October	113	10.8
November	86	8.2
December	96	9.2
TOTAL Number of Collisions	1048	100.0

OBSERVATIONS

Pedestrian casualty collisions were fairly evenly distributed across all months of the year. March and October accounted for the largest number of collisions, while August experienced the least number of pedestrian crashes.

Table 8.2

CASUALTY COLLISIONS INVOLVING PEDESTRIANS:

DAY OF OCCURRENCE

1986

Day of Week	N	%
Monday	117	11.2
Tuesday	154	14.7
Wednesday	156	14.9
Thursday	169	16.1
Friday	203	19.4
Saturday	160	15.3
Sunday	89	8.5
TOTAL Number of Collisions	**1048**	**100.0**

OBSERVATIONS

Pedestrian casualty collisions were most likely to occur on Fridays and least likely to occur on Sundays.

Table 8.3

CASUALTY COLLISIONS INVOLVING PEDESTRIANS:

TIME PERIOD

1986

Time Period	N	%
11:00 p.m. - 2:59 a.m.	91	8.7
3:00 a.m. - 6:59 a.m.	32	3.1
7:00 a.m. - 10:59 a.m.	124	11.8
11:00 a.m. - 2:59 p.m.	222	21.2
3:00 p.m. - 6:59 p.m.	378	36.1
7:00 p.m. - 10:59 p.m.	188	17.9
Unspecified	13	1.2
TOTAL Number of Collisions	**1048**	**100.0**

OBSERVATIONS

Pedestrian casualty collisions were most likely to occur during the evening rush-hour period from 3:00 p.m. to 6:59 p.m. These collisions were least likely to occur during the early morning hours.

Table 8.4

CASUALTY COLLISIONS INVOLVING PEDESTRIANS:

LOCATION

1986

Location	N	%
Urban	966	92.2
Rural	81	7.7
Unspecified	1	0.1
TOTAL Number of Collisions	**1048**	**100.0**

OBSERVATIONS

The majority of pedestrian casualty collisions (92.2%) occurred in urban areas. Only 7.7% occurred in rural areas.

Table 8.5

CASUALTY COLLISIONS INVOLVING PEDESTRIANS:

DRIVER ACTION*

1986

Driver Action	N	%	Total Casualty Collisions (All Vehicle Types) %
Driving Properly	444	55.1	45.3
Failed to Yield Right of Way	244	30.3	4.8
Backed Unsafely	41	5.1	0.8
Unsafe Speed	23	2.9	6.0
Failed to Observe Traffic Control Device	14	1.7	6.3
Ran Off Road	13	1.6	8.3
Improper Passing	10	1.2	0.8
Left of Centre	7	0.9	1.7
Improper Turn	5	0.6	1.6
Left Turn Across Path	3	0.4	5.1
Entered Lane When Unsafe	1	0.1	1.8
Followed Too Closely	1	0.1	4.7
TOTAL Number of Drivers	**806**	**100.0**	

OBSERVATIONS

In over half (55.1%) of the collisions involving pedestrians the driver action was noted as driving properly. However, compared to total casualty collisions, drivers involved in pedestrian casualty collisions were more than six times as likely to fail to yield right of way (30.3%).

* Based only on those cases where a driver action was specified on the collision report form.

Table 8.6

AGE OF PEDESTRIAN CASUALTIES

1986

Age in Years	Number Killed	Number Injured	Total Casualties N	Total Casualties %	Casualty Rate Per 10,000 Population* %
Under 5	2	81	83	7.2	4.0
5 - 9	3	126	129	11.3	6.9
10 - 14	3	110	113	9.9	6.5
15 - 19	3	132	135	11.8	7.3
20 - 24	5	132	137	12.0	6.0
25 - 29	2	104	106	9.3	4.1
30 - 34	2	67	69	6.0	3.0
35 - 44	4	97	101	8.8	3.1
45 - 54	5	72	77	6.7	3.6
55 - 64	10	70	80	7.0	4.6
65 and over	13	83	96	8.4	4.9
Unspecified	0	19	19	1.7	
TOTAL Number of Pedestrians	**52**	**1093**	**1145**	**100.0**	

OBSERVATIONS

The casualty rate per population was highest for pedestrians between the ages of 5 and 19. In particular, pedestrians aged 15 to 19 had the highest casualty rate. The lowest casualty rate was recorded for persons between the ages of 30 and 54. The greatest number of fatalities was in the age group 65 and over.

* Source - Based on postcensal estimate of the population by sex and age, Canada and Provinces, 1986, Statistics Canada.

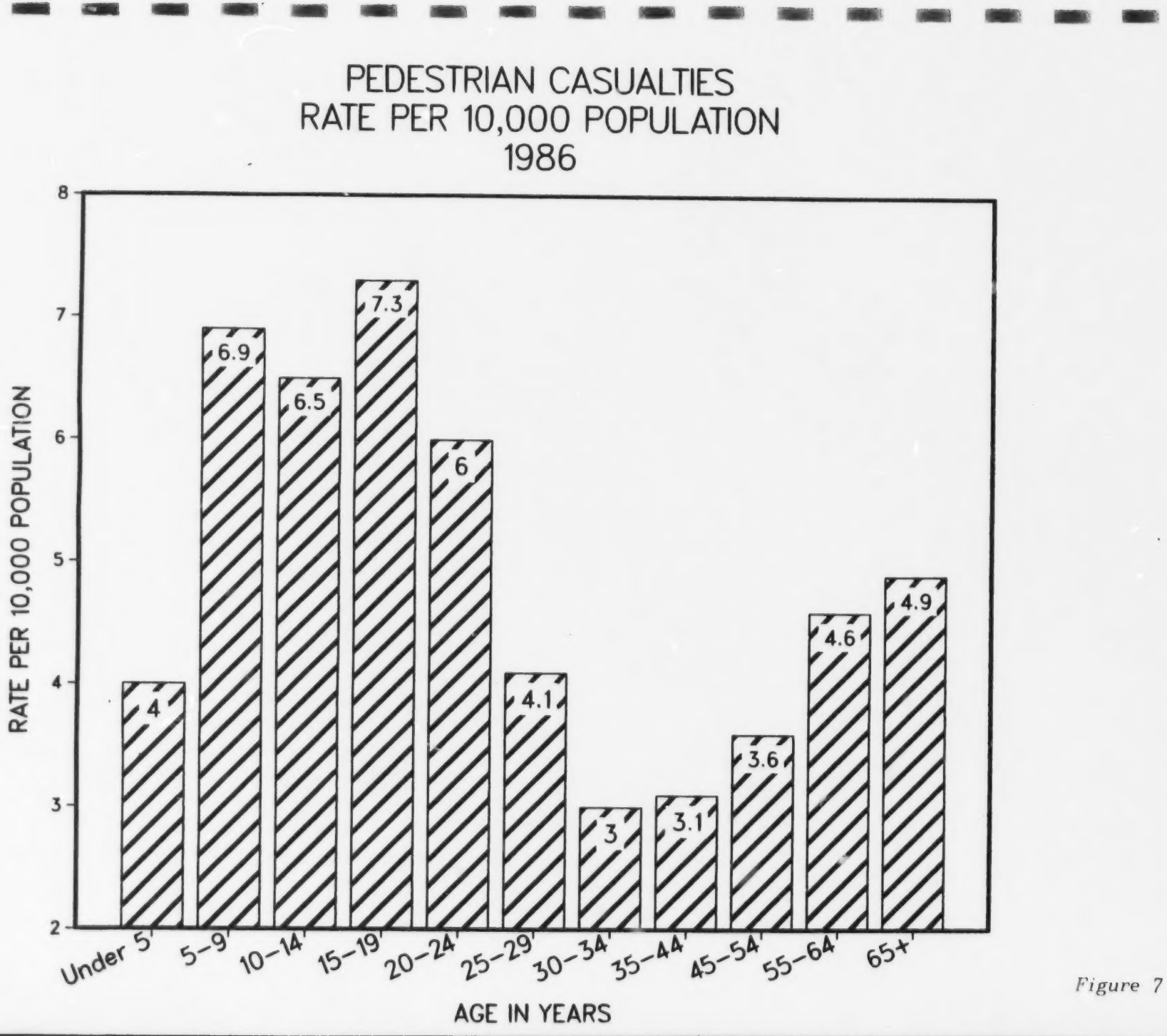

PEDESTRIAN CASUALTIES
RATE PER 10,000 POPULATION
1986
RATE PER 10,000 POPULATION
8
7
6
5
4
3
2
4
6.9
6.5
7.3
6
4.1
3
3.1
3.6
4.6
4.9
Under 5
5-9
10-14
15-19
20-24
25-29
30-34
35-44
45-54
55-64
65+
AGE IN YEARS

Figure 7

Table 8.7

CASUALTY COLLISIONS INVOLVING BICYCLES:

MONTH OF OCCURRENCE

1986

Month	N	%
January	4	0.7
February	1	0.2
March	22	3.8
April	53	9.1
May	72	12.4
June	120	20.7
July	102	17.6
August	96	16.6
September	56	9.7
October	44	7.6
November	9	1.6
December	1	0.2
TOTAL Number of Collisions	580	100.2

OBSERVATIONS

The majority of casualty crashes involving bicycles occurred during the warm weather months of May to August.

Table 8.8

CASUALTY COLLISIONS INVOLVING BICYCLES:

DAY OF WEEK

1986

Day of Week	N	%
Monday	81	14.0
Tuesday	121	20.9
Wednesday	90	15.5
Thursday	72	12.4
Friday	100	17.2
Saturday	76	13.1
Sunday	40	6.9
TOTAL Number of Collisions	**580**	**100.0**

OBSERVATIONS

Casualty collisions involving bicycles were more likely to occur on Tuesdays.

Table 8.9

CASUALTY COLLISIONS INVOLVING BICYCLES:

TIME PERIOD

1986

Time Period	N	%
11:00 p.m. - 2:59 a.m.	26	4.5
3:00 a.m. - 6:59 a.m.	8	1.4
7:00 a.m. - 10:59 a.m.	82	14.1
11:00 a.m. - 2:59 p.m.	106	18.3
3:00 p.m. - 6:59 p.m.	233	40.2
7:00 p.m. - 10:59 p.m.	118	20.3
Unspecified	7	1.2
TOTAL Number of Collisions	**580**	**100.0**

OBSERVATIONS

The largest number of casualty crashes (40.2%) involving bicycles occurred over the evening rush-hour period of 3:00 p.m. - 6:59 p.m.

Table 8.10

CASUALTY COLLISIONS INVOLVING BICYCLES:

AGE AND SEX OF BICYCLIST*

1986

Age of Bicyclist	Male		Female		TOTAL	
	N	%	N	%	N	%
Under 5	6	1.0	1	0.2	7	1.2
5-9	63	10.8	24	4.1	87	14.9
10-14	96	16.5	33	5.7	129	22.2
15-19	94	16.2	30	5.2	124	21.3
20-24	74	12.7	19	3.3	93	16.0
25-29	44	7.6	10	1.7	54	9.3
30-34	19	3.3	6	1.0	25	4.3
35-44	16	2.7	3	0.5	19	3.3
45-54	6	1.0	2	0.3	8	1.4
55-64	3	0.5	1	0.2	4	0.7
65+	3	0.5	0	0.0	3	0.5
Unspecified	13	2.2	16	2.7	29	5.0
TOTAL Number of Bicyclists	**437**	**75.1**	**145**	**24.9**	**582**	**100.0**

OBSERVATIONS

The majority of bicycle casualty collisions involved male bicyclists. The 10-19 year old age group were most frequently involved in these collisions.

* Includes only bicyclists whose age and sex were specified on the collision report form.

Table 8.11

CASUALTY COLLISIONS INVOLVING BICYCLES:

ACTION OF BICYCLIST*

1986

Action of Bicyclist	Bicycle Collisions N	Bicycle Collisions %	Total Casualty Collisions (All Vehicle Types) %
Driving Properly	172	33.1	45.3
Failed to Yield Right of Way	63	12.1	4.8
Failed to Observe Traffic Control Device	41	7.9	6.3
Entered Lane When Unsafe	29	5.6	1.8
Left Turn Across Path	21	4.0	5.1
Left of Centre	18	3.5	1.7
Improper Turn	11	2.1	1.6
Unsafe Speed	10	1.9	6.0
Improper Passing	6	1.2	0.8
Ran Off Road	6	1.2	8.3
Followed Too Closely	2	0.4	4.7
Failed to Signal	1	0.2	0.1
Other	139	26.8	12.8
TOTAL Number of Bicyclists	**519**	**100.0**	

OBSERVATIONS

Improper actions on the part of the bicyclist were a contributory factor in 66.9% of these casualty crashes. Compared to operators of other vehicles, bicyclists were more than twice as likely to fail to yield right-of-way and three times as likely to enter a lane when unsafe.

* Based only on cases where driver action was specified on the collision report form.

TRAFFIC SAFETY ISSUES

ALCOHOL INVOLVEMENT

- A total of 11.5% of drivers involved in injury crashes were judged to have consumed alcohol prior to the crash, compared to 26.9% of drivers involved in fatal collisions. As the severity of the collision increased, the involvement of alcohol dramatically increased.

- In terms of involvement per 1,000 licensed drivers, males between 18 and 21 years of age were most likely to have been drinking before the crash. There were approximately six times as many male drivers as female drivers who had consumed alcohol prior to the collision.

- Alcohol related crashes were most likely to occur between May through August, on Saturday, and between 11:00 p.m. and 2:59 a.m.

- Figure 8 provides a graphic representation of the involvement of drinking drivers in casualty collisions over the five years, 1982-1986.

RESTRAINT USE

- Unrestrained occupant casualties were more likely to be young adults, 16 - 19 years of age.

- 79.6% of female occupant casualties and 84.9% of male occupant casualties were not restrained at the time of the crash.

- Figure 12 graphically illustrates that the majority of vehicle occupants killed or injured in traffic collisions were reported as being **unrestrained** at the time of the crash.

- It should be noted that the collision report form only captures restraint use information for **people killed or injured in a collision.** The form **does not** collect restraint use information for individuals involved in a collision who were **not** killed or injured.

Table 9.1

CONDITION OF DRIVERS IN CASUALTY COLLISIONS*

1986

Condition of Driver	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Drivers in Casualty Collisions N	Total Drivers in Casualty Collisions %
Normal	382	70.9	19362	87.3	19744	86.9
Had Been Drinking	89	16.5	1561	7.0	1650	7.2
Alcohol Impaired	56	10.4	1006	4.5	1062	4.7
TOTAL Alcohol Involvement	**145**	**26.9**	**2567**	**11.5**	**2712**	**11.9**
Other	12	2.2	262	1.2	274	1.2
TOTAL Number of Drivers	**539**	**100.0**	**22191**	**100.0**	**22730**	**100.0**

OBSERVATIONS

Of all drivers involved in injury collisions, 11.5% had consumed alcohol before the crash, compared to 26.9% in fatal collisions. As the severity of the collision increased, the involvement of alcohol dramatically increased. Overall 11.9% of drivers involved in casualty collisions were judged to have consumed alcohol before the crash.

* Based only on cases where driver condition was specified on the collision report form.

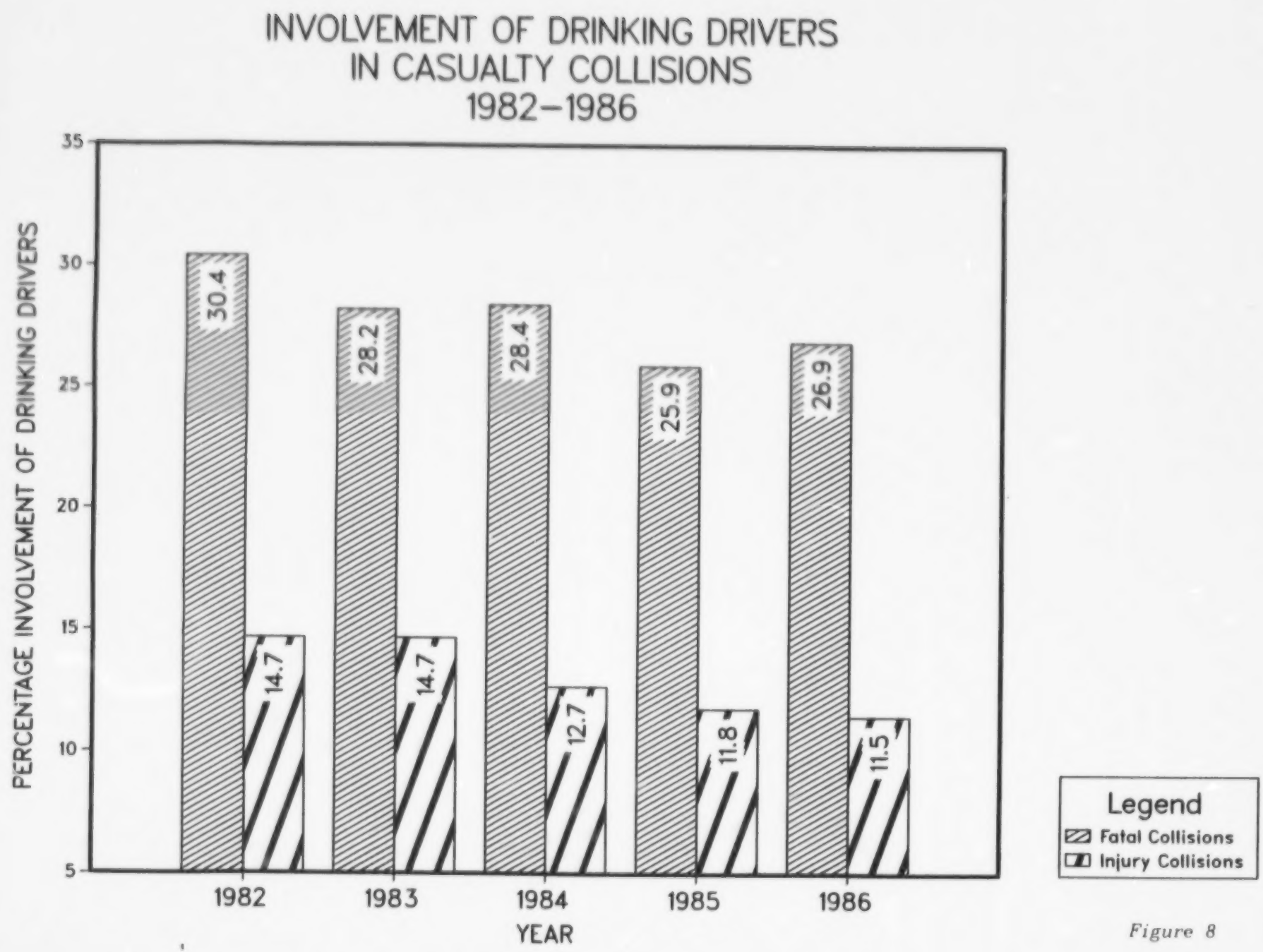

INVOLVEMENT OF DRINKING DRIVERS
IN CASUALTY COLLISIONS
1982–1986
PERCENTAGE INVOLVEMENT OF DRINKING DRIVERS
35
30
25
20
15
10
5
30.4
14.7
28.2
14.7
28.4
12.7
25.9
11.8
26.9
11.5
1982
1983
1984
1985
1986
YEAR
Legend
Fatal Collisions
Injury Collisions

Figure 8

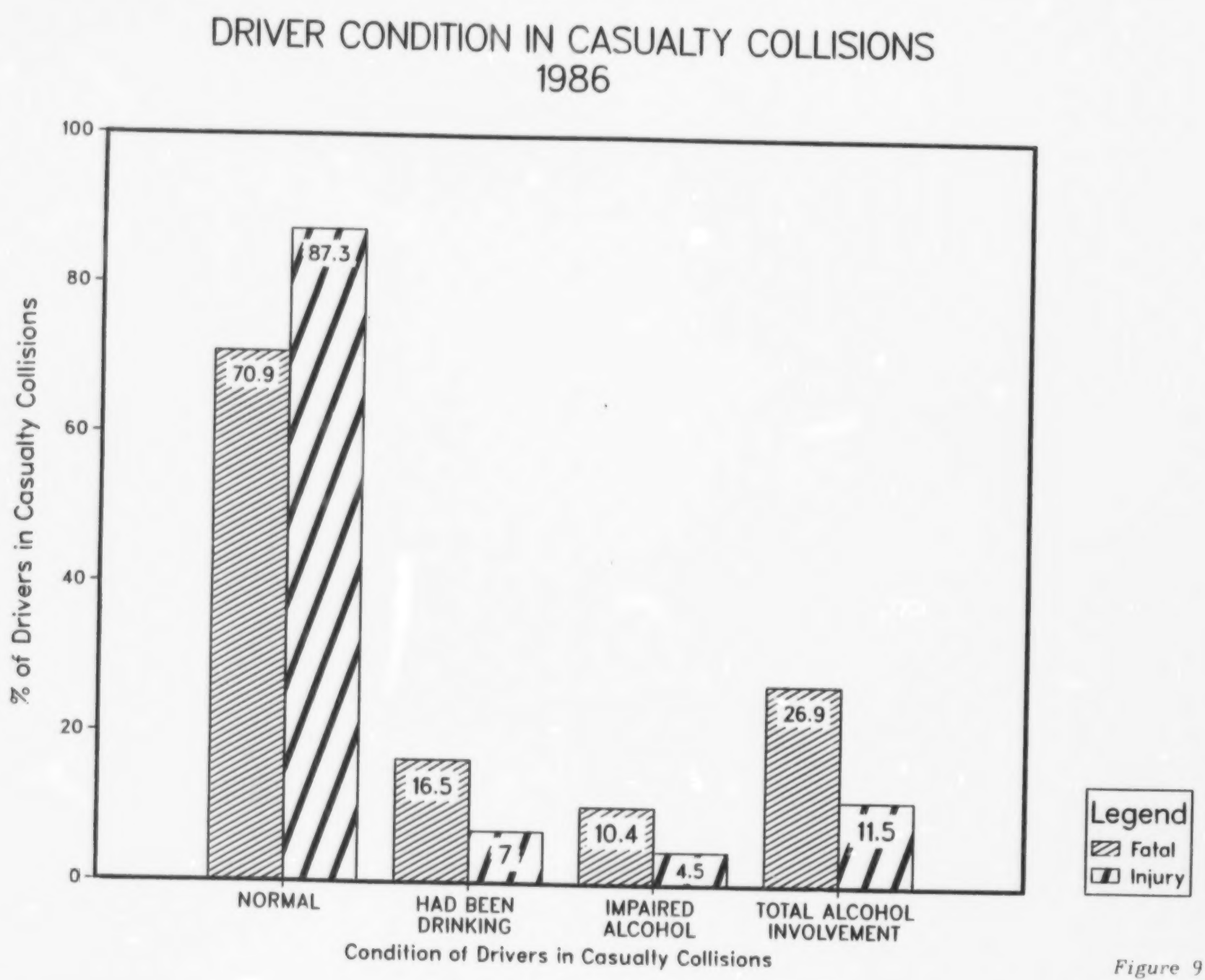

DRIVER CONDITION IN CASUALTY COLLISIONS
1986
% of Drivers in Casualty Collisions
100
80
60
40
20
0
70.9
87.3
16.5
7
10.4
4.5
26.9
11.5
NORMAL
HAD BEEN DRINKING
IMPAIRED ALCOHOL
TOTAL ALCOHOL INVOLVEMENT
Condition of Drivers in Casualty Collisions
Legend
Fatal
Injury

Figure 9

Table 9.2

ALCOHOL-INVOLVED CASUALTY COLLISIONS:

AGE AND SEX OF DRINKING DRIVERS*

1986

Age in Years	Male N	Male %	Male Per 1000** Licensed Drivers	Female N	Female %	Female Per 1000** Licensed Drivers	Total N	Total %	Total Per 1000** Licensed Drivers
Under 16	9	0.3	0.5	4	0.1	0.4	13	0.5	0.5
16 - 17	121	4.5	3.8	27	1.0	1.0	148	5.5	2.5
18 - 19	282	10.5	7.4	41	1.5	1.3	323	12.0	4.6
20 - 21	303	11.2	6.8	41	1.5	1.1	344	12.8	4.1
22 - 24	347	12.9	4.1	59	2.2	0.8	406	15.1	2.5
25 - 29	471	17.5	2.9	73	2.7	0.5	544	20.2	1.8
30 - 34	274	10.2	1.9	58	2.2	0.5	332	12.3	1.2
35 - 44	275	10.2	1.4	48	1.8	0.3	323	12.0	0.9
45 - 54	123	4.6	1.0	16	0.6	0.2	139	5.2	0.6
55 - 64	58	2.2	0.6	8	0.3	0.1	66	2.4	0.4
65 and over	38	1.4	0.5	2	0.1	0.0	40	1.5	0.4
Unspecified	13	0.5	-	4	0.1	-	17	0.6	-
TOTAL Number of Drivers	**2314**	**85.9**		**381**	**14.1**		**2695**	**100.0**	

OBSERVATIONS

Of those collision-involved drivers who had consumed alcohol, there were approximately 6 times as many male drivers as female drivers. The majority were male drivers under the age of 30. In terms of involvement per 1,000 licensed drivers, males 18-21 years of age, are more likely to have consumed alcohol prior to a casualty collision than any other age group. After the age of 30, alcohol involvement decreased for both male and female drivers.

* Includes only drinking drivers whose sex was specified on the collision report form. Drinking drivers include those indicated on the collision report form as having been drinking prior to the crash and those who were alcohol-impaired at the time of the crash. Whether or not the driver was actually charged is not taken into consideration by the collision report form.

** Source: Alberta Solicitor General - Motor Vehicles Division. Operator Statistics, January 31, 1987.

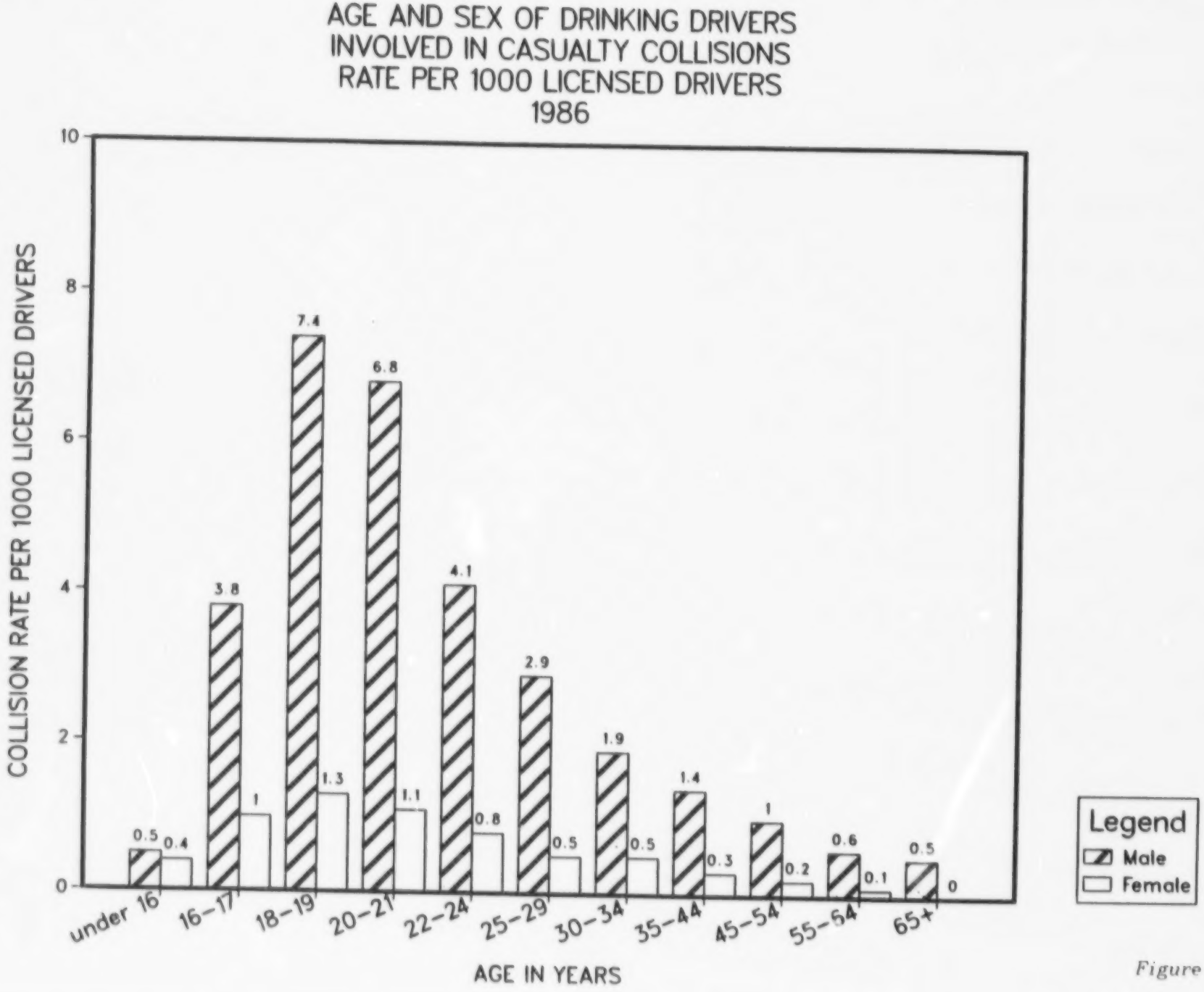

AGE AND SEX OF DRINKING DRIVERS
INVOLVED IN CASUALTY COLLISIONS
RATE PER 1000 LICENSED DRIVERS
1986
COLLISION RATE PER 1000 LICENSED DRIVERS
10
8
6
4
2
0
0.5
0.4
3.8
1
7.4
1.3
6.8
1.1
4.1
0.8
2.9
0.5
1.9
0.5
1.4
0.3
1
0.2
0.6
0.1
0.5
0
under 16
16–17
18–19
20–21
22–24
25–29
30–34
35–44
45–54
55–54
65+
AGE IN YEARS
Legend
Male
Female

Figure 10

Table 9.3

ALCOHOL-INVOLVED CASUALTY COLLISIONS:

MONTH OF OCCURRENCE

1986

Month	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
January	8	5.6	151	6.1	159	6.1
February	12	8.4	145	5.9	157	6.0
March	5	3.5	181	7.3	186	7.1
April	12	8.4	173	7.0	185	7.1
May	16	11.2	254	10.3	270	10.3
June	18	12.6	254	10.3	272	10.4
July	17	11.9	237	9.6	254	9.7
August	18	12.6	273	11.0	291	11.1
September	10	7.0	205	8.3	215	8.2
October	14	9.8	248	10.0	262	10.0
November	7	4.9	185	7.5	192	7.3
December	6	4.2	169	6.8	175	6.7
TOTAL Number of Collisions	**143**	**100.0**	**2475**	**100.0**	**2618**	**100.0**

OBSERVATIONS

The months of May through August accounted for the largest proportion of alcohol-involved casualty collisions. The months of January, February and December accounted for the smallest proportion of alcohol-involved casualty collisions.

Table 9.4

ALCOHOL-INVOLVED CASUALTY COLLISIONS:

DAY OF WEEK

1986

Day of Week	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
Monday	8	5.6	160	6.5	168	6.4
Tuesday	10	7.0	230	9.3	240	9.2
Wednesday	20	14.0	249	10.1	269	10.3
Thursday	18	12.6	293	11.8	311	11.9
Friday	28	19.6	387	15.6	415	15.9
Saturday	41	28.7	691	27.9	732	28.0
Sunday	18	12.6	465	18.8	483	18.4
TOTAL Number of Collisions	**143**	**100.1**	**2475**	**100.0**	**2618**	**100.1**

OBSERVATIONS

The highest number of alcohol-involved fatal (28.7%) and injury (27.9%) collisions occurred on Saturdays. The smallest number of alcohol-involved casualty collisions occurred on Mondays.

Table 9.5

ALCOHOL-INVOLVED CASUALTY COLLISIONS:

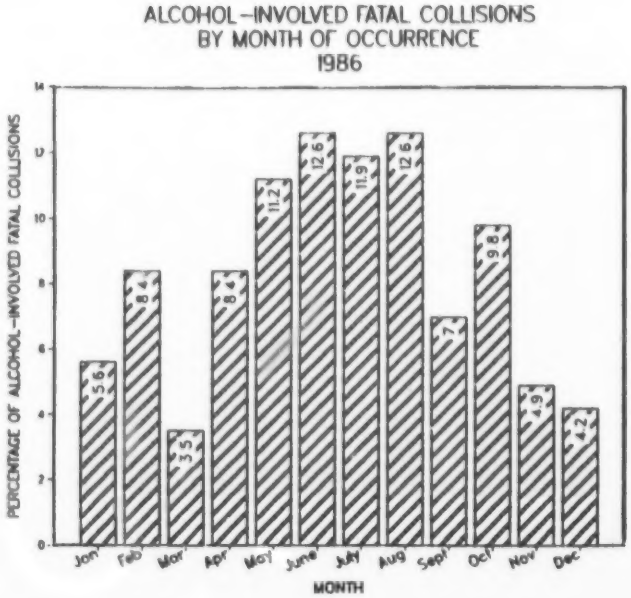
TIME OF OCCURRENCE

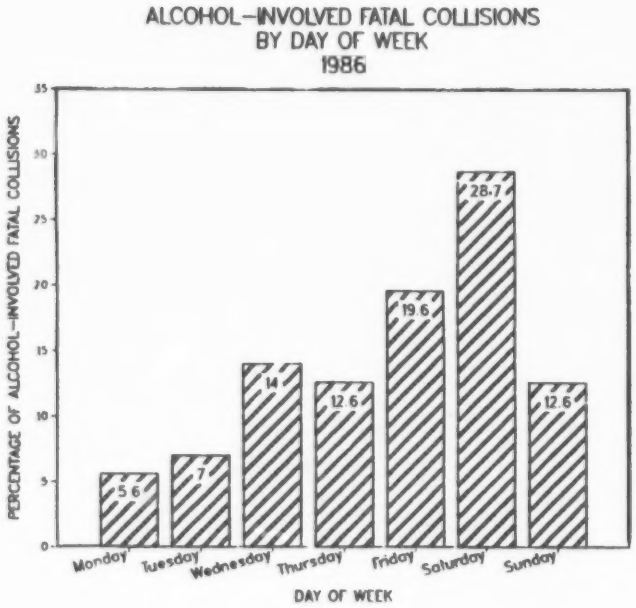
1986

Time Period	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
11:00 p.m. - 2:59 a.m.	44	30.8	819	33.1	863	33.0
3:00 a.m. - 6:59 a.m.	22	15.4	389	15.7	411	15.7
7:00 a.m. - 10:59 a.m.	5	3.5	124	5.0	129	4.9
11:00 a.m. - 2:59 p.m.	5	3.5	113	4.6	118	4.5
3:00 p.m. - 6:59 p.m.	35	24.5	365	14.7	400	15.3
7:00 p.m. - 10:59 p.m.	32	22.4	607	24.5	639	24.4
Unspecified	0	0.0	58	2.3	58	2.2
TOTAL Number of Collisions	**143**	**100.0**	**2475**	**100.0**	**2618**	**100.0**

OBSERVATIONS

The late evening/early morning time period (11:00 p.m. - 2:59 a.m.) was most likely to record alcohol-involved casualty collisions (33.0%). The mid-day hours (11:00 a.m. - 2:59 p.m.) were least likely to record alcohol-involved casualty crashes (4.5%).


ALCOHOL–INVOLVED FATAL COLLISIONS
BY MONTH OF OCCURRENCE
1986
PERCENTAGE OF ALCOHOL–INVOLVED FATAL COLLISIONS
0
2
4
6
8
10
12
14
5.6
8.4
3.5
8.4
11.2
12.6
11.9
12.6
7
9.8
4.9
4.2
Jan
Feb
Mar
Apr
May
June
July
Aug
Sept
Oct
Nov
Dec
MONTH


ALCOHOL–INVOLVED FATAL COLLISIONS
BY DAY OF WEEK
1986
PERCENTAGE OF ALCOHOL–INVOLVED FATAL COLLISIONS
0
5
10
15
20
25
30
35
5.6
7
14
12.6
19.6
28.7
12.6
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
DAY OF WEEK

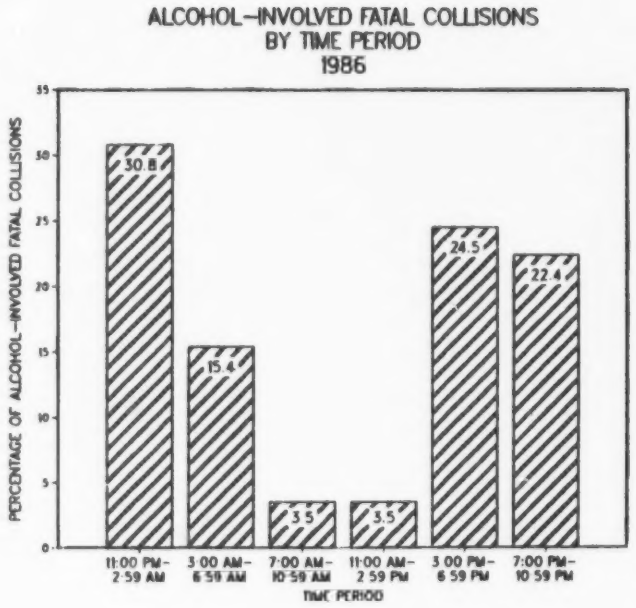

ALCOHOL–INVOLVED FATAL COLLISIONS
BY TIME PERIOD
1986
PERCENTAGE OF ALCOHOL–INVOLVED FATAL COLLISIONS
0
5
10
15
20
25
30
35
30.8
15.4
3.5
3.5
24.5
22.4
11:00 PM–
2:59 AM
3:00 AM–
6:59 AM
7:00 AM–
10:59 AM
11:00 AM–
2:59 PM
3:00 PM–
6:59 PM
7:00 PM–
10:59 PM
TIME PERIOD

Figure 11

Table 9.6

RESTRAINT NOT USED:

AGE OF OCCUPANT CASUALTIES

1986

Age in Years	Percent Not Using Restraints
Under 5	59.4
5-9	79.4
10-15	88.[illegible]
16-17	90.6
18-19	91.1
20-21	88.6
22-24	86.9
25-29	81.9
30-34	78.5
35-44	78.0
45-54	78.0
55-64	77.0
65+	76.1
Overall Percent Not Using Restraints	**82.4**

OBSERVATIONS

Unrestrained occupant casualties were more likely to be young adults, 16-19 years of age. 82.4% of occupant casualties were not wearing a seatbelt at the time of the crash.

NOTE: Includes only driver and passenger casualties where age and use of restraint was specified on the collision report form.

Table 9.7

RESTRAINT NOT USED:

SEX OF OCCUPANT CASUALTIES

1986

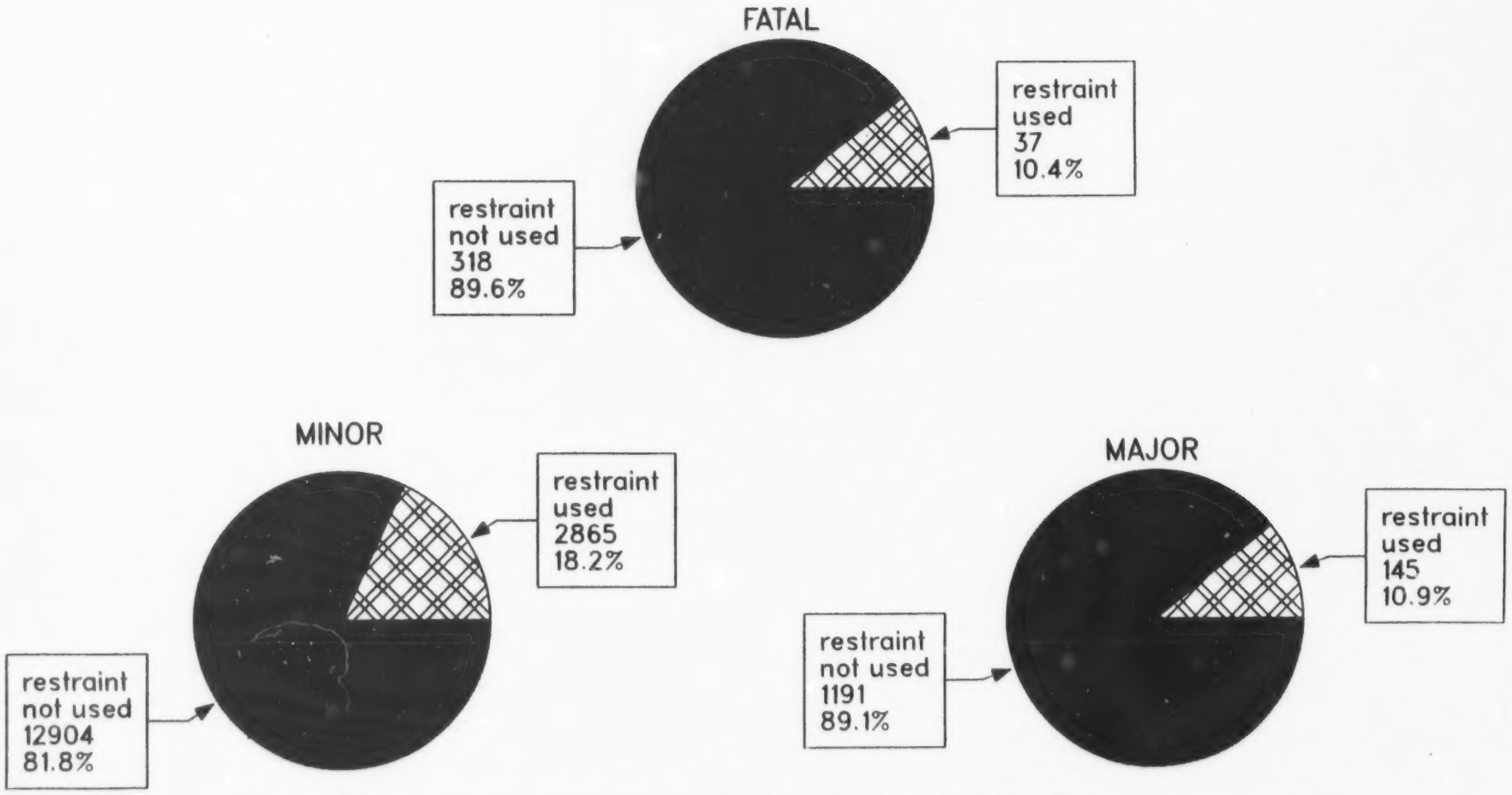
Sex of Victim	Percent Not Using Restraints
Male	84.9
Female	79.6
Overall Percent Not Using Restraints	**82.5**

OBSERVATIONS

79.6% of female occupant casualties and 84.9% of male occupant casualties were unrestrained at the time of the collision.

NOTE: Includes only driver and passenger casualties where sex and use of restraint was specified on the collision report form.

INJURY SEVERITY AND USE OF RESTRAINT FOR OCCUPANT CASUALTIES 1986



Note: *Includes only driver and passenger casualties where injury severity and use of restraint was specified on the collision report form.*

Figure 12